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The economy, the employment-unemployment ratio, and the amount, type, and level of available education have contributed to the general economic decline of the Pittsburgh Standard Metropolitan Statistical Area (SMSA). A survey was made to assist in overcoming the situation. The present and future student population need was examined against the present program of vocational education. Redesign was suggested in terms of industry's need for employees, based on kinds of skills and types of job opportunities.

A picture is presented of population changes, the status of industry, unemployment and employment statistics, the role of labor unions, and total educational opportunities. Parental, student, and written studies, questionnaire answers, and personal interviews resulted in tables and statistics from which recommendations were made.

The survey revealed inadequate vocational training resulting from emphasis on academic education, lack of funds, and poor attitude on the part of schools, students, parents, and community. Deemed necessary were: increased guidance and counseling service, particularly in the elementary schools; accommodation by the junior or community colleges of the 60 students not receiving post-high school education because of lack of funds; and acquisition by students, parents, and the community of realistic knowledge of job opportunities, training required, and the cost of such training.

It was concluded that only by having and using accurate and current knowledge can a program required in our technological age be provided. Community and home attitudes must be influenced to lead students into vocational areas. Cooperation by all levels of government and community is necessary to provide sufficient funds for vocational education. An appendix is attached.

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VOCATIONAL EDUCATION in th
PITTSBURGH PUBLIC SCHOOL

FOREWORD

During the past few years the Pittsburgh Public Schools have moved forward steadily toward their goal of the finest urban program of education in the country. Recent developments have included advanced placement programs, team teaching, language laboratories, a reduced-load English program, a curriculum continuity demonstration designed to make less difficult the transition from one level of education to another, and a number of new courses of study and textbooks.

In the spring of 1962 the Board of Public Education, aware of the impact of modern technology not only on employment, but also on the curricula offered in the schools, authorized a survey of vocational education as the next step in the pursuit of excellence in its program of education for the youth of this city. The central objective of the survey was to produce recommendations resulting in the redesigning of the program of vocational education better to serve students and the community.

Financed under a grant from the Buhl Foundation, the survey was directed by D. D. Dauwalder, research specialist with broad experience in the field of industrial training and survey techniques. Mr. Dauwalder completed his study in April of this year and submitted a report of his findings and recommendations to the Board. Even though the report has not yet been analyzed by either members of the Board of Education or of the administrative staff of the Pittsburgh Public Schools, it was decided, nevertheless, because of widespread public interest in the survey, to distribute copies immediately to interested members of the community. The report, as presented by Mr. Dauwalder, follows.

Sincerely,

Wm. H. Rea

President

Board of Public Education

VOCATIONAL EDUCATION

in the

PITTSBURGH PUBLIC SCHOOLS

A Study of Industries and Schools in the City of Pittsburgh, Pennsylvania, Relating to the Education and Training Required for Successful Job Placement in the Various Skill Levels and Types of Employment Available in the Area.

« »

by

DONALD D. DAUWALDER
Survey Director

« »

Under Contract Arrangements with

THE PITTSBURGH BOARD OF PUBLIC EDUCATION

April, 1963

VOCATIONAL EDUCATION AND TRAINING

This is a study of all existing education and training programs and facilities located in the schools and in the industries of the City of Pittsburgh. Particular emphasis is placed on those programs which are geared to the pre-employment training of semi-skilled, skilled, technical, sales, and service personnel.

The facts obtained from the schools, industries, and from statistical sources are presented both in narrative style and in the form of tabulations directly related to the material. The coverage was determined by the present and potential industrial needs in the City of Pittsburgh and by the current school offerings in the Pittsburgh area, and was defined by the Executive and Board-Staff Committees. Except as noted in the context, the data are as received from the schools and the companies studied.

Recommendations contained throughout the various sections of this report have been reviewed by the Executive Committee and wherever differences of opinion regarding the recommendations occurred, these have been noted.

In addition to the data and committee recommendations contained herein, many comments and general recommendations have been made by the survey director. These do not necessarily reflect the opinions of the industries contacted nor of the Pittsburgh city schools. Neither the Executive nor the Board-Staff Committee imposed any restrictions on the survey director in the obtaining of findings or in the making of recommendations.

ACKNOWLEDGEMENTS

Such a great volume of source material was reviewed relating to industrial training and to the educational offerings of the various school districts that it is not practical to list every study and survey from which ideas have been borrowed. We wish to thank every research department, industry, or school organization which has prepared material pertaining either to the analysis or the solution of problems involved in vocational education. We hope that any similarity of findings will be considered as further validation of the basic research involved.

We, however, do specifically want to recognize the assistance given by each member of the Executive Committee, the Board-Staff Committee, the Community Resource and Advisory Committee, and the industry or agency each represents. We wish to express our appreciation for the cooperation which has been received from all of the industries contacted in Allegheny County and the several industrial associations representing them. Administrators and employees of the Pittsburgh City School District have provided us with a great deal of information and have been completely cooperative in all phases of the study pertaining to school activities, curricula, administration, and plans.

COMMITTEES

Three committees were involved in the formation of objectives for the survey, in the obtaining and considering of findings, and in the formation of recommendations. These committees are listed below:

Board-Staff Committee

Immediately following the decision by the Pittsburgh Board of Public Education to conduct a survey of vocational education, a committee was formed composed of members of the Board and administrative staff of the city schools. This committee determined the original objectives of the study and selected the membership of the Executive and Community Resource and Advisory Committees. The membership of the Board-Staff Committee follows:

William H. Rea, Chairman; President of the Board

Thomas Pryde, Director, Vocational and Industrial Arts Education

Clair H. Cogan, Assistant Superintendent — Secondary Schools

John A. Feigel, Member of the Board

Dr. Calvin E. Gross, Superintendent of Schools

Mrs. Leland Hazard, Member of the Board

Dr. Evan W. Ingram, Associate Superintendent for Instruction

Mrs. Clarence Klein, Member of the Board

W. Everett McLaine, Member of the Board

Louis J. Reizenstein, Member of the Board

Oscar J. Schwarm, Assistant Superintendent—Pupil Services

Dr. John P. Schaefer, Associate Superintendent for Business, originally served on the Board-Staff Committee. He had responsibility for much of the work required to get the survey in operation.

Miss Ethel Patton, Assistant for Community Services, has served as secretary to the Board-Staff and Executive Committees. In addition, she has functioned as research assistant to the survey director during the entire period of the study.

Mr. Harold B. Black, Director, Vocational and Industrial Arts Education, retired, met as a member of the Board-Staff Committee until his retirement. He has since served as consultant to the survey director.

Community Resource and Advisory Committee

Two hundred and twenty representatives of the community and area were selected by the Board-Staff Committee and agreed to serve on the Community Resource and Advisory Committee. The complete membership is listed in the Appendix, pages A-1 to A-5. This committee met three times to receive reports and make suggestions on recommendations prepared by the Executive Committee. The chairman of the Executive Committee also served as chairman of the Community Resource and Advisory Committee.

Executive Committee

The following persons served as members of the Executive Committee. They were appointed from the membership of the Community Resource and Advisory Committee by the Board-Staff Committee. The Executive Committee met regularly during the survey and considered all findings and recommendations presented by the survey director. The committee membership follows:

Dr. Otis C. McCreery, Chairman; Assistant to the President, Aluminum Company of America

Regis C. Aiken, International Vice President, Plumbing and Pipefitting Industry

Frank R. Armour, Jr., President, H. J. Heinz Company
Alternate: Ralph B. Johnson, Staff Assistant

Mrs. Alfred W. Crozier, Member, Governor's Committee on Education

Arthur M. Doty, Manager, Personnel Relations Department, Aluminum Company of America

Robert W. Ferguson, General Manager, Commercial Division, Bell Telephone Company of Pennsylvania
Alternate: J. Paul Scurlock, District Manager of Special Accounts

The Honorable James A. Jordon, Member, City Council

Aaron Levinson, President, Levinson Steel Company

George S. McGill, District Manager, Pennsylvania State Employment Service
Alternate: Carman B. Smith, Supervisor, Reports and Analyses

Dr. Robert B. Mears, Assistant Vice President of Applied Research, United States Steel Corporation

Emil E. Narick, Assistant General Counsel, United Steelworkers of America

George A. Palmer, Personnel Director Joseph Horne Company

Donald C. Peters, President, Mellon-Stuart Company

Leslie J. Reese, Civic Leader

Robert H. Ryan, President, Regional Industrial Development Corporation of Southwestern Pennsylvania

Elmer J. Tropman, Executive Director, Health and Welfare Federation

SECTION I

HISTORY AND OBJECTIVES

HISTORY

The Pittsburgh Board of Public Education submitted a plan for a study of vocational education in the Pittsburgh Public Schools in October, 1961. It was stated in part in the proposal that:

> "Many questions have been raised since World War II concerning the whole function of public education for the atomic-space age. Vocational education as part of this program should receive as careful scrutiny and evaluation as the program of academic education. In fact, the emphasis on stepped-up academic education inevitably has resulted in the concern of many people for the education of the majority of youth who have average or less than average academic potential."
>
> * * *
>
> "Technological advance has caused increasingly rapid changes in industrial processes and in the jobs through which people make a living in industry. Automation is a term feared by many workers because of the impact of technology on the world of work. Changes in vocational education have been made in Pittsburgh and elsewhere, but neither deeply nor swiftly enough to demonstrate adequate response to the problem of preparing youth for the world of work presently or in the future.
>
> "Traditionally, vocational education has prepared youth for a trade or an occupation on the simple assumption that the person so educated or trained would spend his life in the same kind of job. Today and in the future as processes change, jobs change and the education of youth for the new world of work requires a broader outlook than is presently apparent. We are always trying to keep abreast of the current instead of looking ahead.
>
> "While rapidly changing industrial methods have caused much of the present high level of unemployment, industry has assumed only minor responsibility for retraining and making employable the workers it finds necessary to release. The public schools are being asked to provide training and retraining for these workers. On the one hand, industry, especially smaller concerns without training programs, requests training service from the schools. On the other hand, the government, concerned about unemployment existing side by side with labor shortages in some occupations, also asks that the schools train and retrain needed workers.
>
> "The nation needs technicians now and in the future. Adequate numbers of such personnel are not being trained. Pressure is on the schools to provide trained technical workers to support the engineers.
>
> "Although Pittsburgh has attempted to adapt its program of vocational education to meet current needs, these adaptations have resulted from intermittent pressures rather than from a sustained effort to solve the problems of young people who are preparing to enter the world of work. Vocational education in Pittsburgh is old and well-established. It has served the community for half a century. During that time, the Strayer Survey of 1939-1940 evaluated the vocational program in a broad general way. In recent years, there has been an increasing need for a thorough study of the program to furnish guide lines for future development."

Concurring in these statements of need for such a study, the Board requested a grant of $35,000 from the Buhl Foundation to conduct a survey of vocational education in the Pittsburgh Public Schools. Reasons cited for the need for such a study included:

1. The general high level of unemployment.
2. Technological advances which have caused rigid changes in industrial processes and jobs.
3. The impact of automation on employment and technology.

It was recommended that the schools and industries of the area be studied to determine their individual and joint responsibilities for the training and retraining of workers. The following items were considered as essential parts of such a survey:

1. The needs and capabilities of youth.
2. The requirements of industry — present jobs and forecasts of future needs.
3. The present program of vocational education as related to industrial needs.
4. The program of training by major industries.
5. The upgrading of skills for those currently employed.
6. The need for retraining of the unemployed.

The request for a grant was approved by the Buhl Foundation, and the Board appointed a survey director to begin such a study during April, 1962. The survey was to require a year for completion.

OBJECTIVES

Following the approval of the survey and the obtaining of the foundation grant, the Board appointed a Board-Staff Committee to establish objectives and to work with community committees in conducting the study. The objectives as defined by the Board-Staff Committee are:

A. General Objectives

1. The central objective of the survey is to produce recommendations resulting in the redesigning of the program of vocational education better to serve the students and the community.

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2. The survey should determine the emphasis to be placed on general education in relation to specific vocational training.

B. Specific Objectives

1. To determine the nature of the student population presently and in the future with respect to ability levels, aptitudes, interests, and educational needs.
2. To examine the present program of vocational education and to determine to what extent vocational education is presently serving the students and the community.
3. To determine present and future employment requirements and practices.
4. To review the function and content of vocational school programs and their relation to programs in other public high schools in Pittsburgh.
5. To determine the relationship between the vocational education program of the Pittsburgh Public Schools and those of other schools in Allegheny County.
6. To determine what new facilities will be required.
7. To ascertain the need for staff changes and additions.
8. To examine standards for the training and selection of new teachers.
9. To estimate the cost of a redesigned program of vocational education.

C. Scope of the Survey

The Board-Staff Committee determined that all basic employment areas should be covered and that industries representing the entire employment field should be surveyed in connection with their present and projected labor forces and requirements.

LIMITATIONS

The Board-Staff and the Executive Committees, meeting jointly, determined the following limitations for the survey:

1. That the geographical area of the study would be limited to the four counties constituting the Pittsburgh Standard Metropolitan Statistical Area.
2. That industrial and school contacts would be limited to Allegheny County.
3. That the survey would concentrate on the pre-employment training of in-school youth and would not cover the many implications of the retraining of adults, except as such retraining related directly to in-school programs or equipment.

The survey objectives and limitations have assisted the survey director in obtaining facts about present operations and programs and in projecting these findings. Too large a scope would have resulted in findings of such a general nature as to be less readily utilizable for future planning. Areas of coverage have been broad enough to be realistic, but not so broad as to result in confusion.

METHODOLOGY

It is believed that no single survey technique would be adequate to determine the actual need for revised vocational educational standards, improved industrial training programs, and the need of industry for specific employee groups. Therefore the methods used in this study include:

1. A review of all school and industrial publications, brochures, and catalogs which pertain to the education of occupational, vocational, or technical workers, the training of these employees, and the recruiting of such personnel.
2. The distribution of questionnaires to industries in the area engaged in all types of operations. These questionnaires are reproduced in the Appendix of this report.
3. Personal interviews with school administrators, supervisors, and teachers at all levels of education.
4. Personal interviews with industrial representatives involved in recruiting, training, job classification, and supervision of employees, to validate and supplement completed questionnaires. In many instances several individuals were contacted at the same company and their varying opinions compared, coordinated, and reconciled.
5. A review of vocational and industrial education courses offered in the Pittsburgh area in all schools from secondary through college post-graduate. This included reviews of course outlines, instructional methods, curricula development methods, teaching methods, and coordination between programs.
6. A review of industrial training programs conducted by, or for, the industries surveyed.
7. A study of student availability for technical and/or vocational programs. These studies were made in the junior high school, the high school, and the adult school programs. Questionnaires used for this purpose appear in the Appendix.
8. A study of the availability and interest of industrial personnel for courses leading to upgrading or advancement, whether such courses were given within industries or in the schools.
9. A validation study of the survey of students by contacting, by questionnaire, a statistically valid random sampling of parents.
10. A study, by questionnaire, of all major labor organizations in the Pittsburgh area.

In addition there was cooperative coordination with those national, state, and community groups, associations, and agencies which have worked, or plan to work, on similar or related projects. Fifty-eight of the more recent studies conducted by such groups have been reviewed by the survey director and many of the findings have been validated for conditions applying in the Pittsburgh SMSA.

These studies have been of the following types:

1. General and national recommendations on the increased need for vocational education.
2. State education summaries of current curricula and needs for modification and expansion.
3. Specific studies by school districts on curricula and graduation requirements.

4. Studies by colleges, universities, and research foundations on specific educational and training needs.
5. Studies by industrial firms of educational facilities available in their areas, and of their in-plant training programs.
6. Studies by the United States Department of Labor and by various state departments of employment concerning present and projected manpower needs and availabilities.
7. Studies by associations of industrial firms, of educators, and of training directors, covering their specific aspects of training, as well as salary and classification standards.
8. Studies by industries and schools reporting areas of cooperation and needs for future training of manpower, and utilization of joint advisory committees.
9. Studies by chambers of commerce, university research groups, industrial development associations, etc., covering specific aspects of industrial growth and potential within defined areas.

Most of these surveys or studies have contained materials which have been of value in planning, making, and evaluating this report. The Executive Committee and the survey director have borrowed from several of the public studies and have utilized portions of some of the forms and procedures contained in those studies.

SECTION II

THE INDUSTRIAL ECONOMY

POPULATION

The economy of any industrial area is influenced by population ratios and changes. A decrease in population, as a single factor, may not cause a decline in the economy. It, however, may be a major effect of adverse economic change. Such has been the case in Western Pennsylvania. Therefore, the following population ratios assist in our analysis of the over-all industrial economy.

Pittsburgh Standard Metropolitan Statistical Area

The Pittsburgh SMSA is the eighth such area in population in the United States. This area includes all of the four counties of Allegheny, Beaver, Washington, and Westmoreland.

There has been an 8.68 percent population increase in the Pittsburgh Metropolitan Area from 1950 to 1960. This, however, is the lowest increase in any major SMSA. The following tabulation indicates the relative populations and percentages of change for the fifteen largest areas during the last decade. Information was obtained from the Bureau of Census figures for 1950 and 1960.

SMSA Population — 1960-1950

Rank	Area	1960 Population	1950 Population	% of Change
1	New York, N.Y.	14,759,429	12,911,994	+14.31
2	Los Angeles, Cal.	6,742,696	4,367,911	+54.37
3	Chicago, Ill.	6,220,913	5,495,364	+13.20
4	Philadelphia, Pa.	4,342,897	3,671,048	+18.30
5	Detroit, Mich.	3,762,360	3,016,197	+24.74
6	San Francisco, Cal.	2,783,359	2,240,767	+24.21
7	Boston, Mass.	2,589,301	2,369,986	+ 9.25
8	Pittsburgh, Pa.	2,405,435	2,213,236	+ 8.68
9	St. Louis, Mo.	2,060,103	1,681,281	+22.53
10	Washington, D.C.	2,001,897	1,464,089	+36.73
11	Cleveland, Ohio	1,796,595	1,465,511	+22.59
12	Baltimore, Md.	1,727,023	1,337,373	+29.14
13	Newark, N.J.	1,689,420	1,469,061	+15.00
14	Minneapolis-St. Paul	1,482,030	1,116,509	+32.74
15	Buffalo, N.Y.	1,306,957	1,089,230	+19.99

Allegheny County and the City of Pittsburgh

Allegheny County, Pennsylvania, is the ninth largest county in population in the United States. It dropped from eighth to ninth place from 1950 to 1960 with an over-all population increase during that period of 7.5 percent. Of the seventeen largest counties in the United States, twelve have increased in population at a rate considerably faster than that of Allegheny County and four have shown population decreases. The following tabulation indicates the relative populations and percentages of change from 1950 to 1960 for the seventeen largest counties. (U.S. Bureau of Census figures.)

Population Comparisons by Counties

Rank	County	1960 Population	1950 Population	% of Change
1	Los Angeles, Cal.	6,038,771	4,151,687	+45.45
2	Cook, Ill.	5,129,725	4,508,792	+13.77
3	Wayne, Mich.	2,666,297	2,435,235	+ 9.49
4	Kings, N.Y.	2,627,319	2,738,175	— 4.05
5	Philadelphia, Pa.	2,002,512	2,071,605	— 3.34
6	Queens, N.Y.	1,809,578	1,550,849	+16.68
7	New York, N.Y.	1,698,281	1,960,101	—13.36
8	Cuyahoga, Ohio	1,647,895	1,389,532	+18.59
9	Allegheny, Pa.	1,628,587	1,515,237	+ 7.48
10	Bronx, N.Y.	1,424,815	1,451,277	— 1.82
11	Nassau, N.Y.	1,300,171	672,765	+93.26
12	Harris, Tex.	1,243,158	805,701	+54.29
13	Middlesex, Mass.	1,238,742	1,064,569	+16.36
14	Erie, N.Y.	1,064,688	899,238	+18.39
15	Milwaukee, Wis.	1,036,041	871,047	+18.94
16	San Diego, Cal.	1,033,011	556,808	+85.52
17	Dallas, Tex.	951,527	614,799	+54.77

The City of Pittsburgh is the sixteenth largest city in the United States, according to the 1960 census. It was twelfth in size in 1950. The following tabulation from the United States Bureau of Census figures indicates the relative positions and populations for 1950 and 1960, as well as the percentage of change during those years for the twenty-one cities in the United States having a population of more than 500,000 in 1960. The percentage decline in population for Pittsburgh is exceeded only in St. Louis and Boston.

Population Comparisons by Cities

Rank	Largest Cities	1960 Population	1950 Population	% of Change
1	New York	7,781,984	7,891,957 (1)	— 1.39
2	Chicago	3,550,404	3,620,962 (2)	— 1.95
3	Los Angeles	2,479,015	1,970,358 (4)	+25.82
4	Philadelphia	2,002,512	2,071,605 (3)	— 3.34
5	Detroit	1,670,144	1,849,568 (5)	— 9.70
6	Baltimore	939,024	949,708 (6)	— 1.12
7	Houston	938,219	596,163 (14)	+57.38
8	Cleveland	876,050	914,808 (7)	— 4.24
9	Washington, D.C.	763,956	802,178 (9)	— 4.76
10	St. Louis	750,026	856,796 (8)	—12.46
11	San Francisco	742,855	775,357 (11)	— 4.19
12	Milwaukee	741,324	637,392 (13)	+16.31
13	Boston	697,197	801,444 (10)	—13.01
14	Dallas	679,684	434,462 (22)	+56.44
15	New Orleans	627,525	570,445 (16)	+10.01
16	Pittsburgh	604,332	676,806 (12)	—10.71
17	San Antonio	587,718	408,442 (25)	+43.89
18	San Diego	573,224	334,387 (31)	+71.43
19	Seattle	557,087	467,591 (19)	+19.14
20	Buffalo	532,759	580,132 (15)	— 8.17
21	Cincinnati	502,550	503,998 (18)	— .28

In the preceding tabulation, if we consider only those cities in the general size range of Pittsburgh, we find that those with decreasing populations have declining economies. Those with material population increases have expanding economies. Of the cities with a 1960 population of from 550,000 to 700,000, only Pittsburgh and Boston lost population between 1950 and 1960. Dallas, New Orleans, San Antonio, San Diego, and Seattle all gained population. The three cities with the greatest industrial expansion gained from 43.89 percent to 71.43 percent in population from 1950 to 1960.

Many cities, such as Pittsburgh, are restricted in growth due to geography and/or the surrounding suburban structure. The following tabulation indicates that Pittsburgh decreased in population from 1950 to 1960 by 10.71 percent, and Allegheny County increased by only 7.48 percent. Nevertheless, if the population of Pittsburgh is subtracted from that of the county, Allegheny County would show an increase of 22.16 percent which exceeds the national average.

Comparative Population Changes

	Population 1950	Population 1960	% of Change
United States	151,325,798	179,323,175	+18.50
Pennsylvania	10,498,012	11,319,366	+ 7.82
Pittsburgh Standard Metropolitan Statistical Area	2,213,236	2,405,435	+ 8.68
Allegheny County	1,515,237	1,628,587	+ 7.48
Pittsburgh	676,806	604,332	—10.71
Allegheny County minus Pittsburgh	838,431	1,024,255	+22.16

The population, industries, and fiscal structure of Pittsburgh must, therefore, be considered on a broader base than the present city limits if an adequate economy is to be developed and maintained. Therefore, all sections of this report will refer primarily to the Pittsburgh SMSA.

Population Changes by Age Groups

Total gross population changes do not necessarily indicate that an area is economically sound or unsound. The changes of population in thirty leading cities have ranged from minus 13 percent in Boston to plus 300 percent in Phoenix. The changes in leading counties have ranged from minus 13.6 percent in St. Louis, Missouri, to plus 225 percent in Orange, California. Of far more importance, however, is the stability of age ratios and employment opportunity within the population framework. Pittsburgh's population decline poses a far greater economic problem than exists in Boston or St. Louis even with a smaller percentage decline. We are losing population in the wrong age groups. The following tabulation points up this problem.

Population Changes by Age Groups
1950-1960

Age Group	United States	Pennsylvania	Pittsburgh SMSA	Pittsburgh	Average Other Urbanized Areas
All Ages	+18.50	+ 7.82	+ 8.68	—10.71	+ 60.50
Under 5	+25.01	+15.73	+17.11	— 6.31	+ 80.72
5-14	+45.17	+31.47	+35.73	+ 8.96	+126.57
15-19	+23.88	+10.64	+11.34	— 3.92	+ 88.20
20-29	— 9.16	—24.83	—28.36	—38.03	+ 21.13
30-39	+ 6.84	— 2.70	— 2.72	—25.53	+ 40.91
40-49	+16.22	+12.74	+18.18	—10.16	+ 45.74
50-64	+16.44	+ 7.83	+ 7.16	— 4.77	+ 56.80
65 and Over	+34.69	+27.25	+32.66	+20.45	+ 70.03
Median Age (Yrs.)	29.5	32.0	32.1	33.9	28.8

The United States as a whole had a 9.16 percent decrease in population in the 20 to 29 age group due to decreased birth rates during the last major depression. The problem, however, is greatly magnified in all of Pennsylvania, particularly in Pittsburgh where the loss of population in that most employable of all age groups is over four times the national average. Heavy losses of over 32 percent more than the national also occur in the 30 to 39 age group. These losses are not due to birth rate decrease. They are related almost entirely to the out-migration of the most employable population groups who are unable to find employment in the Pittsburgh area. A large percentage have also left because of the lack of post-high school education at a cost they could afford. Both of these factors are discussed in other sections of this report.

Another factor of concern to the Pittsburgh area is the median age of the population of 33.9 years. This compares unfavorably with the national median of 29.5 years and the 28.8 years average found in those cities of similar size to Pittsburgh which are expanding industrially. This factor is also related directly to the out-migration of the 20 to 29 and 30 to 39 age groups.

From 1950 to 1960 the State of Pennsylvania gained 821,354 in population but had a net migration loss of 475,286.

Allegheny County lost 85,813 through out-migration and the Pittsburgh SMSA lost 105,000. In total, however, the county gained 113,350 and the SMSA gained 192,199. These gains were due to the excess of births over deaths minus the out-migration.

Population Changes by Areas

The following tabulation shows the population registered during the last three census periods and the percentage of change from the preceding census. It will be noted that Pennsylvania and all of the counties of the Pittsburgh SMSA have registered gains considerably below the national averages for each of the past three decades.

Population and Percentage Changes

	1940	1950	1960
United States	132,164,569 +7.27%	151,325,798 +14.49%	179,323,175 +18.50%
Pennsylvania	9,900,180 +2.79%	10,498,012 + 6.04%	11,319,366 + 7.82%
Pittsburgh SMSA	2,082,556 +2.93%	2,213,236 + 6.27%	2,405,435 + 8.68%
Allegheny County	1,411,539 +2.70%	1,515,237 + 7.35%	1,628,587 + 7.48%
Beaver County	156,754 +5.16%	175,192 +11.77%	206,948 +18.13%
Washington County	210,852 +2.95%	209,620 — .58%	217,271 + 3.65%
Westmoreland County	303,411 +2.85%	313,179 + 3.22%	352,629 +12.60%
City of Pittsburgh	671,659 + .28%	676,806 + .76%	604,332 —10.71%

The City of Pittsburgh has gained little in population since 1910. The County of Allegheny has shown continuous gains in each census report.

However, the rate of growth has been less than one-half of the national rate since 1910. Pittsburgh's growth has been limited to some extent by the geographical size limitation which has existed since 1930. These factors relate to the economy of the area and are tabulated on the next page.

Population Growth—1850-1960

Year	Pittsburgh	City Area (Square Miles)	Allegheny County
1850	46,601	1.77	138,290
1860	49,221	1.77	178,831
1870	86,076	23.10	262,204
1880	156,389	27.31	355,869
1890	238,617	27.31	551,959
1900	321,616	28.06	775,058
1910	533,905	41.06	1,018,643
1920	588,343	42.23	1,185,808
1930	669,817	54.50	1,374,410
1940	671,659	54.50	1,411,539
1950	676,806	54.50	1,515,237
1960	604,332	54.50	1,628,587

Population Projections

Several groups, including the Population Division of the Bureau of Census and the Chamber of Commerce of Greater Pittsburgh, have projected population trends for Pennsylvania, the Pittsburgh SMSA, and the counties and cities of the Pittsburgh area.

Population projections for Pennsylvania range from 11,698,000 to 11,860,000 for 1965. The 1970 projections range from 12,051,000 to 12,468,000. These projections range from an increase of 6.47 percent to 10.15 percent over the 1960 population. Since the population of Pennsylvania has increased by only 7.82 percent from 1950 to 1960, and at a considerably lower rate for the prior twenty years, it is not expected that the increase from 1960 to 1970 will be greater than the lowest estimate of 6.47 percent. This could be materially affected, however, if adequate public construction induces industrial investment causing an expansion of present industries and the obtaining of additional industries in the state. Should this happen prior to 1965, it is possible that the state population may reach 12,500,000 by 1970.

Population projections for the Pittsburgh SMSA range from 2,500,000 to 2,780,600 by 1970. The latter projection would require a 15.60 percent increase in population over the 1960 figure. Since the SMSA increased by only 8.68 percent from 1950 to 1960, and at a considerably lower rate during the prior twenty years, it is not expected that the 1970 population will exceed a 9 percent increase. Unless industrial expansion can be attained in the area prior to 1967, it is not practical to assume that the population of the SMSA will exceed 2,600,000 by 1970.

Projections for Allegheny County have ranged as high as a 15.53 percent increase by 1970. We do not believe that the increase will be larger than 7.50 percent if present employment conditions continue.

Projections for Beaver County range as high as a 9.11 percent increase. We believe that this projection will be exceeded even without an expanding economy since Beaver County has not maintained less than an 11.77 percent increase between census periods since 1940.

Projections for Washington County range as high as an increase of 32.78 percent. During the past thirty years, Washington County has not increased in population during any decade by more than 3.65 percent. We believe this maximum projection is completely unrealistic. Even with an expanding economy, Washington County will probably not increase in population by more than 8 percent.

The projection for Westmoreland County ranges as high as a 9.12 percent increase. During the past decade, Westmoreland County has increased in population by 12.60 percent. We believe that the increase by 1970 will be a minimum of 10 percent, with a maximum of 15 percent, if industrial expansion occurs during that period.

Population projections for the City of Pittsburgh have ranged from a 10.04 percent to a 13.35 percent increase by 1970. Since 1930 the population change in the City of Pittsburgh by decade has ranged from a high of +.76 percent to a low of —10.71 percent. With the continuing migration of population into the suburban areas and with the conversion of more and more residential property to public and other tax exempt, non-residential uses, we do not believe that the population of the City of Pittsburgh can increase by more than 5 percent by 1970 even with the completion of high-rise apartments and other industrial redevelopment plans. It is very probable that Pittsburgh will show a continuing population decline through 1970.

THE ECONOMY OF THE PITTSBURGH SMSA

As related to both population growth and industrial expansion, the period from 1900 to 1920 marked the end of increasing productivity within Pennsylvania's economy. Major changes occurred in the 19th Century economy which had developed textile, mining, railroad, ship building, and heavy industries such as steel. Rapid changes brought about by developments in electrical machinery and the internal combustion engine began to affect this economy adversely. There was a material decline in productivity indexes from 1900 to the beginning of World War I, during which time the economy was temporarily boosted. The indexes again decreased sharply during the '20s and '30s and, except during World War II, the economy has been declining steadily ever since.

The economic decline in Pennsylvania is not directly related to a general decline in the eastern part of the United States. The population of Pennsylvania has been dropping materially as a percentage ratio of the total population of the surrounding states. The present trends indicate that while total employment in the nation rose nearly 50 percent from 1940 to 1960, the increase in Pennsylvania was slightly over 25 percent. Had the same employment and growth ratios been maintained, there would be over 500,000 additional workers currently employed, producing approximately $4,000,000,000 annually in additional goods and services.

Specific segments of the economy of the Pittsburgh SMSA are discussed below. The various business indexes listed were prepared by the Bureau of Business Research of the University of Pittsburgh.

Business Activity Averages

Total business activity within the Pittsburgh SMSA for the period 1957 to 1962 (based on the seasonally adjusted average as related to the 1957-59 base period as equalling 100 percent) is tabulated below.

Business Activity Averages

Year	Average Monthly Index	High		Low	
1957	111.2	117.2	(Jan.)	96.5	(Dec.)
1958	90.4	94.1	(Jan.)	86.2	(Apr.)
1959	92.8	110.6	(June)	63.1	(Oct.)
1960	93.5	109.8	(Jan.)	80.1	(Dec.)
1961	89.1	94.6	(Dec.)	81.7	(Jan.)
1962	90.8	97.6	(Feb.)	85.0	(July)

Total Trade Index

Total trade in the Pittsburgh SMSA has been increasing since 1960, as indicated in the following seasonally adjusted monthly averages as related to the 1957-1959 base period. Specific segments of the trade economy are discussed later in this section.

Year	Average Monthly Index	High		Low	
1957	102.8	107.5	(Jan.)	95.9	(Dec.)
1958	97.6	103.9	(Jan.)	92.5	(Oct.)
1959	100.3	109.3	(July)	93.9	(Oct.)
1960	100.1	103.8	(July)	94.5	(Dec.)
1961	100.8	106.5	(Nov.)	95.4	(May)
1962	105.1	109.1	(Apr.)	101.0	(Oct.)

Industrial Production Averages

Since 1957, these seasonally adjusted averages have decreased rather steadily as related to the 1957-1959 base period. The decline can be statistically related to the population and employment decreases.

Year	Average Monthly Index	High		Low	
1957	112.8	121.6	(Feb.)	95.2	(Dec.)
1958	87.0	92.6	(Nov.)	81.4	(Apr.)
1959	89.0	113.0	(May)	48.3	(Oct.)
1960	90.7	113.7	(Jan.)	73.6	(Dec.)
1961	84.0	89.9	(Dec.)	74.8	(Jan.)
1962	84.2	94.9	(Feb.)	74.8	(July)

Iron and Steel Production

The American Iron and Steel Institute changed its base reporting period late in 1960. Currently, the base period, 1957-59 equals 100 percent, is used. However, projections have not been made on this base period prior to 1961. Production for the year 1961 averaged 91.2 percent; for 1962, 92.8 percent. The high production month was February, 1962, with 121.8 percent; the low was July, 1962, with 67.0. All prior years are reported on the base period 1947-49.

Productivity from 1957-60 averaged 111.8 percent for 1957; 76.7 percent for 1958; 83.4 percent for 1959; and 90.0 percent for 1960. The high production month was January, 1957, with an index of 136.9. Except during periods of labor disputes, the low index was 59.9 in September of 1960.

With the decentralization of steel production, the national capacity since World War II has expanded by approximately 75 percent. However, output has increased approximately 30 percent.

World War II also saw the establishing of modern steel production facilities in nearly every section of the country. Therefore, the high rate of productivity in Pennsylvania is no longer required to meet national demands. Even the companies operating in Western Pennsylvania are building their new facilities in other parts of the country and are not adequately modernizing the older plants in existence here.

Local steel operations moved ahead for four consecutive weeks during February and March of 1963 to an index base of 110. A great deal of this increase is due to the stockpiling of steel inventories by heavy manufacturers, particularly in the automobile industry. It is estimated that by the deadline of the currently expected labor negotiations, the automobile industry will have increased its inventory sufficiently to manufacture the entire 1964 output. Therefore, regardless of the outcome of negotiations, there will be a material decrease in iron and steel production during the summer and fall of 1963 and the spring of 1964.

Coal Production

Coal production has declined continuously since before World War II with temporary upward trends during peak production periods. Based on the 1957-59 averages, production has declined from 116.6 in 1957 to 90.5 in 1962. The high month during this period was February, 1957, with 132.1; the low month was August, 1959, with 61.1. This decline, however, is only relative since it is based on recent comparisons. Of far greater consequence is the fact that coal mining production has decreased by over 80 percent from 1920 to 1962.

In 1900, Pennsylvania was employing more than half of the total workers engaged in coal mining nationally. By 1960, this ratio had declined to less than one-fourth. This was mainly due to the refusal of operators to expand enough to meet increased demands and to the negligible amounts spent by the industry on research and development. Less than one percent of the total sales volume has gone into research as compared to nearly four percent in the petroleum and natural gas industries.

Currently, coal is producing approximately 25 percent of the basic energy of the nation. Eventually atomic and related powers will decrease this percentage. However, due to the development of high capacity power generators, power plants will be located near basic energy sources. Two such plants are being constructed in Southwestern Pennsylvania and until 1975 at least, the percentage of basic energy from coal will be increased to approximately 37 percent. This will result in increased employment by 1965 of roughly 11 percent in the mines of Western Pennsylvania.

Related to the same construction of generation plants, local steel industry can be expected to average a 3 percent growth over the next 10 years.

Other Related Business Indexes

Following are indexes covering specific industrial operations, all based on the 1957-59 period.

Originating Shipments

For the period 1957 to 1962, the highest yearly average was 133.7 in 1957. The low was 68.8 in 1961. The peak was reached in March, 1957, with 148.3, and the lowest point was August, 1959, when the average dropped to 26.8.

Electric Power Production

Since 1957 the peak year for electric power production was 1962 when the average was 155.5. The low was 93.7 in 1958. The high was reached in January, 1962, with an average of 171.8; the low during the same five-year period was in September, 1959, when the production dropped to 64.6.

Retail Trade Index

During the years 1957 to 1962, the high yearly average was reached in 1962 with 112.8. The low was 98.3 in 1957. The monthly figures ranged from a low of 82.8 for February, 1957, to a high of 156.7 for December, 1962.

Department Stores

Department stores had their peak year in 1962 when their average was 114.5. The low was 101.3 for 1958. The peak month during the period was December, 1962, when the average climbed to 207.5. The lowest month was February, 1958, when the index dropped to 70.7.

Chain Food Stores

The high yearly average in the six-year period was attained in 1962 when sales reached 112.5. The low was 97.3 in 1957. Monthly averages ranged from a low of 87.9 in February, 1957, to a high of 127.1 in December, 1962.

All Wholesale Concerns

The best year in this area of business on an average daily base was 1957 when the average was 101.9. The low was 97.5 in 1960. The lowest month of the period was January, 1959, with 88.3; and the highest was November, 1961, with 112.1.

Passenger Car Registrations

The high year was 1957 when the actual number of registrations averaged 3,862 per month. The lowest average was 2,775 in 1958. May, 1960, was the peak month with 5,148; the low point was in February, 1961, when the registrations totaled 1,959.

Banking Statistics

The number of debits posted to individual accounts in Allegheny County reached a high monthly average in 1962 with 5,350. The low was 3,999 in 1958. The actual high point of the six-year period was December, 1959, with 5,999 and the low point was February, 1958, with 3,408.

Building Permits

The actual number of building permits issued averaged 419 per month in 1959. The low was 312 in 1962. During the six-year period the greatest number of permits was 611, issued in July, 1958, and the fewest was 122 in December, 1962.

Deeds Recorded

The actual number of deeds recorded averaged a high of 2,616 in 1959. The low was 2,242 in 1962. For the six-year period the actual high was 3,231 in June, 1957; the low was 1,588 in February, 1961.

Economic Index Summary

The above listed index data indicate that:

1. General Business Activity has declined rather continuously due primarily to decreasing Industrial Production averages and Originating Shipments. This trend will not be completely reversed unless present production industries expand and diversify or new industries can be obtained for the area.
2. Total Trade Indexes are showing a slight recovery trend in Retail Trade, Department Store Trade, and Chain Food Trade. Wholesale Trade is remaining fairly constant. Electric Power Sales are increasing and Passenger Car Sales have been improving since the low in 1958.
3. Banking statistics as related to individual accounts are improving; however, total finance, insurance, and real estate employment increases in Pennsylvania since 1930 have been 54 percent, as compared to nearly 90 percent nationally. This comparative decline reflects the loss of industry and the inflexibility of many Pennsylvania financial institutions in working with new and/or expanding industries.
4. Building Permits, Deeds Recorded, and other related construction indexes have been materially declining. In contrast the Utility Indexes have been improving. The general economy is very adversely affected by curtailed public and private construction.

Profits and Capital Expenditures

Corporate profits, after taxes, were approximately the same for 1962 as for 1950 in dollars. However, the Gross National Product nearly doubled and per capita income was materially increased. If profits had kept pace with economic growth, the 1961 national profit total would have amounted to over 40 billion dollars instead of 23 billion. The additional 17 billion probably would have been used substantially to re-equip, modernize, and diversify. With profits at their ground level, many owners in depressed areas are selling their holdings and investing in securities which pay a larger and a guaranteed income.

This profit squeeze has been greatest in basic, non-diversified industries such as those which predominate in Pittsburgh. The federal government has provided some relief by liberalizing depreciation regulations for tax purposes and by the 7 percent investment credit. Substantial and permanent cuts in both corporate and personal tax rates, if approved by Congress, would improve profits moderately. Profits, however, would rise slower than the national income.

To improve the profit situation materially, it is necessary that industry spend on capital investment, especially in areas related to diversification. Capital investment for the Pittsburgh SMSA fell 24 percent from 1960 to 1961. Total capital expenditures for 1962 increased approximately 29 percent. Planned expenditures for 1963 are slightly less than for 1962.

However, on the brighter side, in eleven classifications of manufacturing Pittsburgh industries expect to spend 12 percent more in 1963 than in 1962 and 42 percent more than in 1961.

The percentage of expenditures devoted to modernization will reach an all-time high. Manufacturing firms are expected to spend 87 percent of their capital outlays for modernization, as opposed to expansion. In 1962, the figure amounted to 84 percent. All business firms will spend 71 percent of their capital investments in 1963 on modernization, compared to 63 percent in 1962. Such investments indicate increased mechanization and their short-run effect can be job-reducing rather than job-creating, even though investment outlays are the prime source of long-term economic growth.

If the economy of the area is to be materially improved, it is necessary that investment and expansion be related to areas of technological progress through diversification and the establishing of new industries.

Environmental resources which have been developed here over the last 150 years are threatened with obsolescence. However, the region has a great opportunity to assume the role of a research center if industries spend more on research and if adequate educational facilities are provided. The area must devote more attention to creating a climate for diversification which is ready to respond to new forms of economic opportunity. Capital investments must be increased to a rate of at least 8 percent of the Gross State Product.

Economic growth of an area is dependent upon an increase in spending. The public has been maintaining its spending ratio while the federal government has limited its increased spending to the point where there has been little growth industrially during the last two years. This decline will probably continue. As an example, some $8,000,000,000 were spent on military aircraft in 1957. It is estimated that this will decrease to about $4,000,000,000 by 1967. However, consumer spending on airline travel has risen from 7 to 10 percent per year. This upward trend is expected to continue. In addition, expenditures on air cargo may increase as much as 100 times the current rate over the next ten years. Therefore, one decreased source of spending will usually be counteracted by a corresponding increase in another area of spending. Industrial organizations have learned during the recent years that the economy changes too rapidly for a company to rely solely on one or two products it may have produced in the past.

During this survey it has been evident that companies, both large and small, must diversify their products and increase their production skills in order to compensate for the shift in government versus private spending. In many instances small companies cannot diversify economically within their own company framework. Therefore, many consolidations should be considered. Both small and large firms by diversification and consolidation, where needed, will be in a position to compete in the future markets which will require rapid changes from one production technique to another.

The expansion possibilities of industries in the Pittsburgh SMSA are greater than in many other areas of the nation due to the availability of natural resources and markets. When improved transportation and more complete education are provided, there need be no limitation to expansion and economic development.

Location of New Industries

Industries which will expand and diversify in the Pittsburgh SMSA and new industries moving into the area may follow the national trend and utilize rural rather than urban sites. More than half of all new industrial sites during the last two years have been established in rural areas. This compares with 35 percent in 1954. The trend is changing very rapidly. During the last 12 months, 8 out of every 10 sites selected by major industries have been in rural areas.

Rural industrial sites are established because of reduced labor and tax costs. There is also a difference in land values. A 10-acre tract in a metropolitan area would cost approximately $1,000,000 as compared to from $10,000 to $12,000 in communities of 10,000 population.

It, however, will be necessary for many industries to locate in or near urban areas, particularly industries requiring skilled and semi-professional workers. Such industries must be near post-high school educational institutions and must depend on university research facilities for the developmental factors necessary for expansion.

The urban areas should concentrate on expanding existing industries and bringing in new industries of a technological nature requiring highly trained workers. Both urban and rural areas must work together toward industrial diversification and expansion. A bolstered economy in either area will materially aid both.

Per Capita Income

Pennsylvania's per capita income is $2,261, $2 per year below the national average. Even with relatively high wage rates, the per capita standards placed Pennsylvania in the lower half of the nation's income producers during 1962 for the first time. Other eastern states such as Massachusetts, Connecticut, New York, New Jersey, Delaware, Maryland, Ohio, and Illinois have all posted per capita income increases. The major increases, however, have occurred in the Southwest, including Oklahoma, Texas, New Mexico, and Arizona. Washington, Oregon, Nevada, and California show an average per capita income 19 percent above the rest of the nation.

The states which have registered greater per capita income increases than the average have also spent more public money on improvements and on education. This, in turn, has resulted in greater private investment. Each dollar of public expenditure for long-term improvements has caused the investment of over two dollars of private money which, in turn, has increased the Gross State Product by over nine dollars.

If Pennsylvania had spent the same amounts on a per capita basis each year since 1950, the per capita income would be comparable to that in the expanding industrial states and would not be below average for the entire nation.

Public investment policies, as they relate to per capita income and to the Gross State Product, are discussed in Section VIII of this report.

EMPLOYMENT AND UNEMPLOYMENT

Directly related to the population and economic declines is the ratio of employment and unemployment to the total civilian work force as tabulated below for the years 1955 to 1962 for the Pittsburgh SMSA.

Employment and Unemployment Pittsburgh SMSA — 1955-1962

(in thousands as reported by Bureau of Employment Security)

Period	Total Civilian Work Force	Total Employment	Total Unemployment	% of Work Force Unemployed
Oct., 1955	966.2	921.3	44.9	4.6
Oct., 1956	972.8	938.4	34.4	3.5 (lowest unemployment)
Oct., 1957	979.6	930.7	48.9	5.0
Oct., 1958	973.2	876.4	96.8	9.9
Oct., 1959	872.2*	781.0*	91.2	9.3
Oct., 1960	957.3	858.0	99.3	10.4
Feb., 1961	946.6	815.8	130.8	13.8 (highest unemployment)
Oct., 1961	942.8	856.7	86.1	9.1
Oct., 1962	931.9	845.8	86.1	9.2

*Excludes a large number of workers involved in labor-management disputes.

This area has maintained a continuous unemployment ratio averaging over 9 percent since 1958. It reached a peak of 13.8 percent in February, 1961. For a few months in 1959, 1960, and 1962, the ratio was slightly less than 9 percent, but the averages have remained high and the area has continued to be classified by the U.S. Department of Labor in Group "E" indicating substantial and persistent unemployment far exceeding the national averages.

In addition, the total labor force has decreased continuously since 1957. As of November, 1962, there were 71,000 fewer workers in the labor force than in December, 1957, and 107,000 fewer workers actually employed than in December, 1956. If the total civilian labor force had not decreased, we would currently have an unemployment ratio of nearly 20 percent. As this report was being written, the most recent verified and adjusted figures on unemployment available from the Department of Labor indicated that for January, 1963, the Pittsburgh SMSA had an unemployment ratio of 11.1 percent. State-wide, the unemployment was 7.9 percent; the rate for the nation was 5.8 percent.

Employed Persons by Major Industry

Of the twelve major industrial groupings tabulated on a monthly employment basis by the Bureau of Employment Security, eight have shown consistent declines for the last several years. The following listings cover the monthly employment averages by industry. The averages are by year on a biannual basis from 1952 to 1962. The figures given are the number employed, in thousands, in the Pittsburgh SMSA.

Manufacturing — Durable Goods

Employment decreases from 291.8 thousand in 1952 to 223.2 in 1962. There were 276.3 in 1954, 285.8 in 1956, 250.5 in 1958, and 245.6 in 1960.

Manufacturing — Non-Durable Goods

Employment decreased from 55.0 thousand in 1952 to 43.7 in 1962. There were 50.2 in 1954, 49.6 in 1956, 47.1 in 1958, and 46.0 in 1960.

Mining

Employment decreased from 26.4 thousand in 1952 to 9.2 in 1962. There were 19.3 in 1954, 16.6 in 1956, 13.8 in 1958, and 11.8 in 1960.

Contract Construction

Employment decreased from 43.2 thousand in 1952 to 36.9 in 1962. There were 36.1 in 1954, 41.2 in 1956, 40.2 in 1958, and 38.2 in 1960.

Transportation

Employment decreased from 54.6 thousand in 1952 to 34.8 in 1962. There were 47.5 in 1954, 47.6 in 1956, 40.9 in 1958, and 39.3 in 1960.

Public Utilities

Employment decreased from 22.1 thousand in 1952 to 20.8 in 1962. There were 22.5 in 1954, 23.2 in 1956, 22.5 in 1958, and 21.4 in 1960.

Wholesale and Retail Trade

Employment decreased from 154.5 thousand in 1952 to 148.3 in 1962. There were 149.9 in 1954, 158.2 in 1956, 155.1 in 1958, and 153.6 in 1960.

Finance, Insurance, and Real Estate

Employment increased from 28.4 thousand in 1952 to 32.2 in 1962. There were 28.9 in 1954, 30.5 in 1956, 32.5 in 1958, and 32.3 in 1960.

Service and Miscellaneous

Employment increased from 91.2 thousand in 1952 to 123.9 in 1962. There were 94.8 in 1954, 104.5 in 1956, 111.0 in 1958, and 116.1 in 1960.

Government

Employment increased from 60.2 thousand in 1952 to 76.6 in 1962. There were 62.7 in 1954, 67.5 in 1956, 70.0 in 1958, and 73.2 in 1960.

Farm (Estimated)

Employment decreased from 11.6 thousand in 1952 to 9.4 in 1962. There were 11.5 in 1954, 10.7 in 1956, 10.5 in 1958, and 10.2 in 1960.

Self-Employed Including Family and Domestic Workers (Estimated)

Employment increased from 70.9 thousand in 1952 to 85.8 in 1962. There were 72.7 in 1954, 77.4 in 1956, 81.0 in 1958, and 82.5 in 1960.

Business Census

Employment has declined more and varied more in the City of Pittsburgh than in the SMSA and over a longer period of time. The following figures from the Business Censuses of 1948 and 1954 and the lastest available for 1958 show that employment in Pittsburgh has increased only in the Selected Services group.

Number Employed in Pittsburgh

Group	1948	1954	1958
Manufacturing	80,991	72,502	64,805
Retail Trade	63,262	47,420	46,690
Wholesale Trade	30,532	28,558	27,897
Selected Services	19,362	20,646	21,135

Comparisons of City, County, SMSA, and State

The following tabulation was prepared from Bureau of Census reports and compares the changes in the percentage of workers employed in major industrial groupings.

Employed Persons by Major Industry
Percent Change — 1950-1960

Industry	Pennsylvania	Pgh. SMSA	Allegheny County	City of Pgh.
Agriculture, Fishing, Forestry	—32.7	—34.9	—28.0	—13.3
Mining	—65.9	—62.9	—51.9	—27.8
Construction	— 4.9	— 4.1	—10.0	—29.9
Manufacturing	7.1	.5	— 4.2	—21.3
Transportation, Communication, Public Utilities	—13.4	—15.3	—17.9	—34.2
Wholesale and Retail Trade	3.8	— 1.2	— 5.3	—27.7
Finance, Insurance, Real Estate	26.0	22.5	18.3	—11.0
Services	23.0	24.9	22.1	2.1
Public Administration	24.3	14.5	12.5	— 1.7

It will be noted from the above percentages that there has been a decrease in employment in Pittsburgh in every occupational area except Services which increased by only 2.1 percent. The county, the SMSA, and the state all had increased employment in several other industrial groupings, although in most groupings there were sizeable decreases in the number of workers employed.

Most of the decreased employment in the four-county area has been in the crafts, in semi-skilled operatives, and in laboring classifications. These three groupings account for over 70 percent of the current unemployed. More education and training are required of all workers of the future. At the present time there are hundreds of job vacancies even though we have nearly 90,000 unemployed. There are now and will always be job opportunities for workers who are adequately prepared.

The number of job openings reported to the Pittsburgh Bureau of Employment Security has ranged from a low of 1,258 to a high of 3,022 per month during 1961 and 1962 for the City of Pittsburgh. For Allegheny County the range has been from 1,675 to 3,550 per month, and for the SMSA it has ranged from 2,707 to 4,791 per month.

Comparison of Pittsburgh SMSA and the United States

The following tabulation shows the percentage of change in employment by type of industry for the Pittsburgh SMSA and the nation as a whole from July, 1955, to June, 1962. Percentages were prepared from Bureau of Labor Statistics figures.

Employment by Type of Industry

Industrial Grouping	Pittsburgh SMSA	United States
Total Employment	— 5.64	+12.59
Mining	—48.60	—11.38
Construction	—10.91	+ 5.74
Manufacturing	—18.29	+ 2.17
Transportation and Public Utilities	—22.51	— 3.44
Wholesale and Retail Trade	— 3.18	+ 8.38
Finance	+16.91	+25.89
Service	+42.08	+34.39
Government	+13.25	+36.77

It is necessary that industrial expansion and diversification in Pittsburgh follow a pattern more nearly resembling the national trends if economic recovery is to be realized.

Employment by Major Occupations

The percentage of workers employed in major occupational areas is considerably different from that of the nation as a whole. The deviation is even greater between the Pittsburgh SMSA and metropolitan statistical areas in other parts of the nation which have been expanding during the past decade.

From the following tabulation it will be noted that the labor force in the Pittsburgh Metropolitan Area considerably exceeds the national averages and the averages found in outstanding industrial areas in the skilled level type of work, in labor classifications, and in some semi-skilled operative occupations. This area, however, does not employ as high a percentage of workers in technical and professional areas, in the managerial occupations, in private household workers classifications, or in the sales, service, and farming fields.

Employment by Major Occupations
Pittsburgh SMSA — 1960

Class of Worker	% in Pittsburgh SMSA	% Deviation from National	% Deviation from Expanding Industrial Areas
Professional, Technical, and Kindred Workers	11.95	+ 6.70	—16.45
Farmers and Farm Managers	.44	—89.45	—14.62
Managers, Officials, and Proprietors	6.95	—34.43	—36.71
Clerical and Kindred Workers	15.77	+ 7.50	— 4.28
Sales Workers	8.42	+27.58	— 8.64
Craftsmen, Foremen, and Kindred Workers	17.24	+34.27	+15.68
Operatives and Kindred Workers	18.82	+ 4.67	+ 2.74
Private Household Workers	1.64	—50.60	—41.24
Service Workers Except Private Household	9.22	+ .22	—18.56
Farm Laborers and Foremen	.35	—91.07	—35.67
Laborers Except Farm	9.20	+67.27	+49.21

Unemployment by Occupations

The deviations in the employment patterns as reported above and the decrease in the older traditional employment areas reflect in the percentage of the current unemployed who list experience in various occupational groupings. It will be noted from the following tabulation that most of the unemployed in the Pittsburgh SMSA were previously working as craftsmen, operatives, semi-skilled, or unskilled workers.

Unemployment by Occupations

	Percentage of Total Unemployed
Professional, Technical, and Kindred Workers	2.36
Farmers and Farm Managers	.08
Managers, Officials, and Proprietors	1.72
Clerical and Kindred Workers	9.94
Sales Workers	6.09
Craftsmen, Foremen, and Kindred Workers	16.59
Operatives and Kindred Workers	24.48
Private Household Workers	1.14
Service Workers, Except Household	9.11
Farm Laborers and Foremen	.48
Laborers, Except Farm	20.92
Occupation Not Reported	7.09

To relieve the unemployment situation and to make ertain the workers of tomorrow are not faced with the ame lack of training in occupations in which there are nore opportunities for employment, it is necessary to offer nore education and training in expanding occupational reas.

The following tabulation shows changes in percentages nationally of those employed in major occupational groupings from 1950 to 1960, as compiled by the Census Bureau.

Employment in Occupational Groupings

Class of Worker	Percentage Change 1950 to 1960
Professional, Technical, and Kindred Workers	+65.46
Farmers and Farm Managers	—37.72
Managers, Officials, and Proprietors, Except Farm	+ 9.92
Clerical and Kindred Workers	+28.18
Sales Workers	+15.15
Craftsmen, Foremen, and Kindred Workers	+11.60
Operatives and Kindred Workers	— 1.32
Private Household Workers	+17.68
Service Workers, Except Private Household	+31.84
Farm Laborers and Foremen	—13.27
Laborers, Except Farm and Mine	+ 4.12
Total	+11.78

Training in Pittsburgh should be concentrated on those occupational groupings which have increased more than the total of 11.78 percent. Areas of concentration, in order of importance, should be:

1. Professional, Technical, and Kindred Workers
2. Service Workers except Household
3. Clerical and Kindred Workers
4. Private Household Workers
5. Sales Workers

Training for skilled and semi-skilled workers should not be on such a general base. Training must be limited to classifications wherein job opportunities exist and in geographical areas where jobs exist.

Public Assistance Programs

The number of families receiving various forms of public welfare has increased materially since 1959. This has been due primarily to the increased unemployment.

The following tabulations by counties in the Pittsburgh SMSA indicate the number receiving public assistance under the various categories of aid. All reports are for the month of July for the year indicated and are from the departments of public assistance in the various counties.

Allegheny County

Year	General Assistance	Old Age	Blind	Dependent Children
1959	7,042	7,150	1,616	7,592
1960	8,795	7,279	1,635	8,491
1961	9,371	7,354	1,676	12,660*
1962	10,651	7,280	1,662	13,937*

*For 1961 and 1962 the aid to dependent children totals include 2,690 and 2,986 cases respectively where assistance was granted because the mother or father had lost employment.

Beaver County

Year	General Assistance	Old Age	Blind	Dependent Children
1959	138	350	76	428
1960	264	370	84	484
1961	276	353	76	791
1962	306	337	75	854

Westmoreland County

Year	General Assistance	Old Age	Blind	Dependent Children
1959	1,224*	1,074	544	1,101
1960	1,611*	1,063	569	1,190
1961	1,417*	1,068	591	2,005**
1962	1,537*	1,077	581	2,161**

*In the general assistance category 338 for 1959, 393 for 1960, 405 for 1961, and 519 for 1962 are classified by the Department of Public Assistance as aid to disabled.

**Aid to dependent children figures for 1961 and 1962 include 582 and 629 cases respectively where assistance was granted because the mother or father had lost employment.

Washington County

Year	General Assistance	Old Age	Blind	Dependent Children
1959	972(a)	847	657	991
1960	1,289(a)	846	664	1,121
1961	1,741(a)*	870	674	1,316
1962	2,493(a)*	866	675	1,377

*In the general assistance category for 1961 and 1962, 528 and 757 are included respectively where assistance was granted because the mother or father had lost employment.

(a) In the general assistance cases reported, this country offered work relief for unemployed. The number receiving such assistance ranged from 181 in 1959 to 552 in 1962.

Cost of Unemployment

Excluding welfare costs and lost production in 1961, 98.3 million was paid to unemployed workers in the Pittsburgh SMSA. Of this amount, 16.1 million was paid to persons unemployed long enough to exhaust their regular claims.

Public assistance grants totaled 39.7 million.

RECOMMENDATIONS

The picture of the declining population, economy, and employment in the Pittsburgh SMSA and the City of Pittsburgh is evident from the statistics and comparisons made in this section.

Specific recommendations are made in each of the following sections pertaining to material contained in that section. Many of these refer directly to the Industrial Economy. In addition, however, the following recommendations should be considered by business planners, employers, educators, and the community as necessary steps to bolster the Industrial Economy:

1. Population decreases must be controlled in the productive, most employable are groups. Employers must concentrate on employing and training these workers. The schools must offer well-developed curricula covering all major areas of employment. Labor organizations must work with the schools and industry and accept young workers as members. The economy cannot survive if only the middle-aged can obtain and/or retain employment.
2. The geographical restrictions on the growth of Pittsburgh must be removed or compensations must be made for them. There will have to be more cooperation between urban and rural areas for the benefit of both. If the urban economy is allowed to decline much further, the rural economy will not be able to survive either.
3. All industries must consider diversification and product improvement, but such considerations and actions on them are essential for those industries engaged in fields of declining productivity and/or sales. Opportunities are unlimited in new product areas. Industries have responsibilities to themselves, their stockholders, their employees, and the community to maintain productivity through product improvement, modernization, and diversification based on research and development and adequate employee training.
4. Unemployment ratios must be more adequately studied and controlled. Industries must work with the schools to retrain employees for new jobs prior to layoff rather than expect public agencies to handle the problem after unemployment insurance expires. The difference in the motivation of the trainee would be material, and the resultant decrease in unemployment would bolster the economy considerably.
5. No economy is assisted by adding to either the unemployment insurance or the public assistance rolls. Industry and all other segments of the economy must sponsor more public improvement projects which will not only add employment, but will build the economy through increased public and private investment. Western Pennsylvania cannot rebuild its industrial potential on a "cash and carry" basis. Long-term public and private investments are required.

SECTION III

SURVEY OF INDUSTRIES

One of the major objectives of this survey was to obtain current information from industries of all types in the Pittsburgh area. This information was to include all available facts relating to present personnel, the amount of education and training required, and the projections of future personnel needs.

Through coordination with the Pittsburgh office of the State Bureau of Employment Security and the Chamber of Commerce of Greater Pittsburgh, complete directories of industries were obtained. The Bureau of Employment Security was planning to survey a sampling of all industries in the four-county SMSA to determine present jobs by general classification and the need for future employees. In order to eliminate duplicate contacts with the major companies which would be covered by both studies, the questionnaires prepared by B.E.S. and our Employer Questionnaire 1 were mailed together. The mailing was handled by the Chamber of Commerce. All replies to the questionnaires have been tabulated, and the results are included in summary form in this section.

EMPLOYER QUESTIONNAIRE 1

This questionnaire was distributed with the Bureau of Employment Security's forms to 1,147 employers in Allegheny County. The B.E.S. survey covered an additional 329 companies located out of Allegheny County but in the SMSA. Total coverage on the two surveys involved 1,476 companies who employ 404,797 workers. The basis of selecting the random sampling of companies employing fewer than 100 workers is explained on Appendix page B-1. Please also refer to pages B-2 through B-8 for the questions responded to by industries in this study.

Of the 1,147 copies of Employer Questionnaire I which were distributed, 52.63 percent were returned completed without requiring follow-up or additional contact; 36.11 percent were obtained by one or several contacts with the company and, in some instances, the required information was obtained through personal interviews with the company by the survey director without the completion of the questionnaire. Responses which have been used in the following tabulations cover 88.69 percent of the original distribution.

Employment by Geographical Areas

Contacts were made only with companies whose headquarters are located in Allegheny County. Several of the companies, however, had branches in the other counties of the SMSA. Of the workers reported, 85.47 percent worked in Allegheny County; 5.88 percent worked in Beaver County; 1.37 percent worked in Washington County; and 7.28 percent worked in Westmoreland County.

Of the total number of workers employed in Allegheny County, 67.37 percent worked within the Pittsburgh urban area.

Employment by Classification Groups

The total current number of workers by classification group was obtained from each company responding. In addition, the projected number of employees by group for 1967 was indicated where such information was available, or was estimated following personal contacts with those companies not maintaining such information. The tabulation presented below indicates the current and projected percentage of employees by labor grouping.

Employment by Classification Groups

	Current Employment	Projected Employment
Unskilled	11.43%	6.31%
Semi-Skilled	17.56%	12.16%
Skilled	18.32%	18.50%
Service	10.71%	12.22%
Sales	9.64%	10.01%
Clerical	14.61%	15.07%
Administrative	3.04%	2.94%
Managerial	4.16%	3.86%
Semi-Professional	4.44%	11.69%
Professional	7.09%	7.24%

The percentages of current employees by groupings reported above by all industries conform very closely to those listed by the Bureau of Census for the Pittsburgh SMSA for the 1960 census period. These are tabulated in Section II of this report. The deviations, although minor, are due to the change in the levels of employment over the past two years and to the sampling selection. The amount of deviation by job levels was plus .88 percent in the unskilled group, minus 1.26 percent in semi-skilled, plus 1.08 percent in skilled, minus .15 percent in service, plus 1.22 percent in sales, minus 1.16 percent in clerical, minus .19 percent in administrative and managerial, and minus .42 percent in professional and semi-professional.

Definitions of the employment levels tabulated were included on Employer Questionnaire 1 and are reproduced on Appendix pages B-2 through B-4.

In projecting future employment ratios, industries indicated a material decrease in the percentage of unskilled and semi-skilled workers who would be employed by 1967. A substantial increase was projected in service, sales, and clerical employment with a 170 percent increase in semi-professional and technical employment. Skilled, administrative, managerial, and professional levels were projected at about the same ratio as currently employed.

Industrial Employment Projections

There was a slight net increase in the over-all employment projected by industry for 1967. Only 29.35 percent of the companies expected increases, 36.13 percent indicated no change except for replacements, and 34.52 percent predicated an actual decrease in their total number of employees by 1967. Most of these companies stated they would not decrease their employment by layoff but would not replace those who resigned, retired, or left for other reasons.

The following tabulation indicates the employment projections expected by the industries of Allegheny County by 1967. It should be noted that the larger companies will employ fewer additional workers on a percentage basis than will the smaller companies. In fact, more than half of the large companies expect employment declines within the next five years.

Over-all projected increase in total employment	4.37 percent
Industries with over 1,000 employees project	1.28 percent
Industries with from 500 to 999 employees project	2.69 percent
Industries with from 100 to 499 employees project	4.68 percent
Industries with from 20 to 99 employees project	12.61 percent
Industries with from 1 to 19 employees project	14.92 percent

The total projected increase of 4.37 percent does not include employment expected to be provided by new industries. It does include the current industries' estimate of net employment changes considering all factors including retirement, layoff, etc. There, however, will be some replacement hiring in addition to the increases indicated above. By 1967 this would mean an added net increase of 5.14 percent. This is still below the required employment increase which would be necessary to correct the current employment-unemployment ratio. An over-all increase of 9 percent minimum would be required just to take care of the present school population. An employment increase of 16 percent would be necessary to reduce the current unemployment rate to an economically safe "hard core level" of 4 percent or less.

Employee Classifications

Each industry responding completed information regarding the number of employees currently working, the number of current vacancies, projected recruiting by 1967, and projected total employment for 1967 by each major job classification. These reports were submitted not only on Employer Questionnaire 1, but also an a supplementary questionnaire submitted by the Bureau of Employment Security covering some 50 major job classifications. As necessary for statistical or explanatory reasons, the numbers of workers reported by classification will be related in following sections of this report to the curricular areas in which vocational education should be offered.

The classification plans used by industries in Allegheny County vary considerably. Only 37.14 percent of the companies replying use any type of classification plan, 35.22 percent use formal job descriptions, and 25.09 percent use the uniform job titles and descriptions contained in the Department of Labor's "Dictionary of Occupational Titles." Therefore, it was very difficult to compare jobs in one company with those in another without obtaining more specific information pertaining to duties, training requirements, etc. This information was obtained by the use of Employer Questionnaire 2, and the findings are tabulated in a later portion of this section relating to that questionnaire.

Employee Turnover

Due primarily to the large unemployment rate in the Pittsburgh area, there were during 1961 far fewer employees leaving their jobs for reasons other than layoff than was true nationally. The average monthly turnover was .89 percent. This compares to national averages of from 2.16 percent to 5.42 percent, depending on the type and size of the company.

Turnover due to layoff reached a total of 49.48 percent of the total labor force during 1961. Most of these employees were hired after short periods of layoff. Those not rehired represented approximately 9 percent of the total labor force.

During 1961, 5.51 percent of the labor force were retired; 1.83 percent were demoted to lower classifications; and 3.78 percent were promoted or reclassified to a higher job level.

Employee Training

Only 13.21 percent of the companies reporting have any type of in-plant training available for their employees. Whenever training programs were indicated, specific information was obtained regarding the type of training offered, the number of trainees, the length of the courses, and whether such programs should be continued by industry or be offered by the public schools.

An evaluation of the programs offered indicated that only 4.63 percent of the companies in Allegheny County have well-developed and formally planned training programs. The remainder of the companies reporting programs offered only a limited amount of on-the-job training in certain skilled classifications. In most instances, however, such O.J.T. programs were not formalized and, in many instances, the span of supervisory control was so great that undoubtedly there was no O.J.T. and probably very limited supervision.

The companies which have formal training organizations averaged 3.61 full-time employees per training department. These employees are primarily coordinators. Instructors are brought in from specialized departments to handle the actual teaching required.

The training departments which offered adequate and complete industrial development programs all met the following criteria:

1. They had determined the need for a course or program.
2. They had established specific training objectives.
3. They had developed an adequate and modern training plan.
4. They used adequate methods, instructional techniques and aids.
5. They had established and used adequate evaluation methods.
6. They adequately coordinated all programs with the trainer, the department for which the training was being conducted, and the employee being trained.

We believe that every business or industry, regardless of size, should offer or make available the following types of training for the employees within their organization who would benefit from such instruction. It is not necessary that a company give each program. However, companies should make arrangements with a training organization or a school to have the required developmental programs made available to their employees:

1. Orientation and Indoctrination of Employees
2. On-the-job Training
3. Skill Level Training
4. Technical Training
5. Engineering and Professional Training
6. Supervisory Training
7. Executive Development

Each of these areas of training must be completely organized and must include all phases of such a program.

Knowledge of Employee Education and Training

It was difficult either from the questionnaire or by personal contact to obtain accurate information concerning the number or the percentage of industrial employees who are attending school or completing some specialized academic or vocational program. Most of the industries do not maintain records of school attendance following the original employment application. Only 23.19 percent maintain such records, and only 6.87 percent of the companies utilize records of additional education or training in making job assignments, evaluations, or promotions.

Of the companies maintaining such records, 85.46 percent are industries employing more than 500 workers; 10.42 percent employ from 100 to 500 workers; and the remainder are smaller companies.

Tuition Refund Plans

Only 15.74 percent of the companies reported full or partial tuition refund plans. Most of these plans were limited to courses which would improve the employee's job skills or prepare him for advancement to the next higher level of employment. Only 3.16 percent of the companies allow tuition refunds to be made for other additional purposes.

The small percentage of companies participating in such educational plans is not nearly as serious as the small percentage maintaining training records and utilizing such information in the evaluation, promotion, and development of their employees.

Scholarship Plans

Only 6.31 percent of the companies offer any type of scholarship plan to their employees or to children of employees. Most of these companies employ over 1,000 workers.

Generally the scholarship plans were found in those companies maintaining formal training organizations and were related directly to the determination of individual training and educational needs, or to the needs for future employees when such plans involved scholarships for children of employees.

Work-Experience Programs

One hundred and forty-two of the industries reporting either are participating or have participated in some form of work experience such as apprenticeship, distributive education, or similar joint industrial-educational programs. Only 42.16 percent of these companies felt that it was practical to continue such work-experience programs. Many of them have discontinued apprenticeship training or other cooperative training and are now attempting to recruit in the skilled and technical levels by the upgrading of unskilled or semi-skilled employees through further training or education.

Two hundred and forty-four of the companies indicated they would participate in future work-experience programs if such programs were completely coordinated, met their needs, and if advisory committee arrangements with the schools allowed full participation by industries of all sizes. Such programs would include summer employment, part-time employment, job connected assignments and study, and on-the-job training.

Interest in various forms of work experience was related to the type of business and to the operation of formal training programs. More companies would accept qualified graduates of vocational schools than would participate in work-experience programs. While only 21.32 percent would become involved in any work experience, 49.14 percent would accept vocational school graduates. Only 8.83 percent felt they could offer summer or part-time employment, but an additional 7.54 percent would participate in job-centered training.

Although 49.14 percent of the companies stated they would employ vocational school graduates, only 9.43 percent had any knowledge of having hired such graduates in the past. This indicates that a great deal more coordination is required between the schools and employers. Evaluations made by these companies of the vocational school graduates were uniformly good. Workers who had completed such training performed much better than those who had not completed vocational curricula. In addition, these workers required a great deal less orientation on the job. The specific vocational programs recommended by industry are detailed in the sections of this report relating to vocational education.

Curricular Recommendations

Most of the companies were not able to make specific recommendations pertaining to trade and technical courses, high school programs, college and university programs, adult school or extension programs. However, the 3.14 percent making such recommendations gave very constructive suggestions which are reviewed in the sections of this report relating to technical and vocational curricula.

Generalist or Specialist

The relationship of generalized to specialized training and the percentage of the vocational curricula which should be academic or vocational were reported on by 11.92 percent of the companies responding. In general, the larger companies desired a greater percentage of academic training and more generalization. The smaller companies desired a higher percentage of vocational subjects and more specialization. In comparing these reports with the total number of employees represented by the companies reporting, it was found that the average company would prefer approximately 76 percent of the vocational curricula to relate directly to the occupation and to specialized factors within the classification; 24.12 percent of the companies felt the ratio should be approximately 50 percent general and 50 percent specialized; 39.31 percent recommended that more than one half of the work be specialized; and 36.57 percent of the companies recommended that more than one half of the work be generalized and in academic areas.

Most of the responses by industry to this question were very positive. The differences of opinion involved such arguments as these in favor of the specialist:

1. Our scientific age is an age of specialization. We no longer have a technician, an engineer, or a teacher who covers every field and/or teaches every subject.
2. Industrial classifications prescribe that a vacancy be filled by an individual with a definite background, such as a comptometer operator, an electronic technician, a mechanical engineer, etc.
3. Specialists receive higher salaries than generalists and the degree of specialization may be directly related to income.
4. The schools and industrial training organizations are responsible for giving a more complete training in limited areas of specialization.

Arguments in favor of the generalist included:

1. Rapid technological advances antiquate specialty operations overnight. It is therefore necessary to train on a broad general base in order that individuals will be more flexible and will be able to find employment more readily under these changing conditions.
2. The function of the schools is to educate on a broad basis in order to develop more well-rounded and adaptable individuals. Industrial training would then provide these well-educated generalists with the specialized skills required to perform the jobs to which they are assigned.
3. Society must prepare itself for a constantly increasing demand for a variety of talents. Less retraining of individual employees would be required if the general education and training background is sufficiently broad.

This problem will not be resolved by a positive either/or answer. The difference is too vital to those holding extreme opinions. Among industries the difference of opinion is related almost directly to the size of the company. The larger industries generally desire to employ a well-educated generalist possessing above average intelligence. Through their in-plant training these companies will then teach the specific skills required for the job assigned. The smaller the industry, the more emphasis is placed on specialized training in the schools. Since smaller companies do not have employee development programs, they have been relying on the schools or on larger industries to give this training to their employees.

Industrial needs must be recognized whether such needs exist in a large or a small company. Some 65 percent of the industrial employees in the Pittsburgh SMSA work for companies which do not have training programs. More than 50 percent of the employees work for companies which do not plan to establish in-plant training. These employees and their future replacements require a great deal of specialized training from the schools. Even those employees working for companies which have training programs require school aid to learn new skills and to refine present skills. All industrial employees need some training, both general and specialized.

The problem is not generalist or specialist; our society requires both. The schools and industry must educate and train along both lines. Every employee of the future needs a combination of general and special skills and knowledges.

The controversy can also be specifically defined within educational circles. Schools, administrators, and individual teachers whose curricular interests and/or training are of a generalist nature recommended the training of all students along the same general academic line. Vocational and industrial schools and teachers believe that students must be given skills which are more rapidly utilizable in industry. This will be discussed more in detail in the section of this report on vocational education.

EMPLOYER QUESTIONNAIRE 2

This questionnaire was distributed to the companies which completed Employer Questionnaire 1 or which provided the required information during personal contacts by the survey director. It is reproduced in Section B, pages B-9 to B-16 of the Appendix. Instructions for its completion appear on Appendix page B-1.

Replies were received from 87.37 percent of the industries which were sufficiently detailed for complete analysis and coordination with similar replies from other companies. Over 45 percent of the responding companies not only returned the questionnaire on the classifications requested, but provided additional information in the form of job descriptions, classification analysis, wage scales, etc.

The information was provided by company employees performing the following functions: those supervising the work of the employees in the reported classification, 34.81 percent; those performing liaison between workers in this classification and others, 8.64 percent; those assigning work to employees other than through direct supervision, 7.42 percent; those maintaining classification or employment records as a personnel function, 26.96 percent; those performing other functions such as personnel manager, training department supervisor, etc., 22.17 percent.

Two hundred and eighty-five occupations were reported on by the industries. These occupations actually represented 462 job titles. Many of the companies used specialized titles even when referring to a job which is described in either the Department of Labor's "Dictionary of Occupational Titles" or by the National Science Foundation's groupings on technicians and engineers. In view of these differences in titles, the reports were combined into 193 general occupations, subdivided into types of employment. These divisions contained 43 semi-skilled classifications, 37 skilled, 46 technical or semi-professional, 18 clerical, 11 sales or distributive, and 39 service occupations.

Of these 193 classifications, 109 require either comprehensive industrial training programs or adequately developed school curricula in order to provide competent workers. Training is needed according to levels of skill in 17 semi-skilled classifications, 21 skilled, 31 technical or semi-professional, 14 clerical, 8 sales or distributive, and 18 service occupations.

Professional classifications were eliminated from this total since training for them is handled by colleges and universities. Also eliminated were the unskilled classifications for which no training is required for employment.

Reports were received on occupational classifications covering 62.61 percent of the total current labor force in Allegheny County. Most of the classifications are in areas of expanding employment. On this selected grouping the employment increase over the next 5 years is projected at 34.74 percent as compared to the 4.37 percent composite increase indicated on Questionnaire 1 by all responding industries for all classifications.

Job Analysis

Companies which did not provide a job description or a classification analysis completed the information requested in the questionnaire relating to the specific job functions performed by employees in this classification. (Appendix pages B-9 to B-11) From this information it was possible to relate the job to those reported by other companies and to the "Dictionary of Occupational Titles" for uniform classification purposes. The level of work performed was also incated, which assisted in this combined classification grouping.

Education and Training

The education and training required for each of the reported classifications were determined from information provided by the employers. This included the percentage of employees in each grouping who could be employed following completion of various levels of education.

The 109 classifications for which industry recommends the establishing of educational programs require various levels of training. Only 48 of the programs can be offered in high school. The remaining 61 require post-high school education.

In the semi-skilled areas of the 17 programs needed, 5 are currently offered. Most of these can be given satisfactorily in high school. In the skilled areas of the 21 required, 11 are offered. However, 16 of the 21 should include some post-high school work. In the technical areas, 2 of 31 are offered. Twenty-eight of the 31 should be post-high school programs. In the clerical occupations, 8 of 14 are offered. Seven of the 14 should include some post-high school work. In distribution, 4 of 8 are offered. Five of the 8 should include post-high school training or adult school supplementation. In the service areas, 6 of 18 are offered. Thirteen of the 18 could be covered in a high school program.

The industrial responses also indicated that employees who will be hired in the future must have more education and special training than are currently being offered. Not more than 6 percent of the employees of the future will be hired with less than a high school education, and 14 percent will be hired with a general high school education. Completion of a high school program including specialized training such as clerical, business, distributive, occupational, or vocational will be required of at least 23 percent. From one to three years of post-high school education will be required of 33 percent of those placed in jobs, and the completion of four years of college or more will be required of 24 percent.

It was uniformly evident from the comments and recommendations made by the industries completing this questionnaire that over twice the number of high school graduates must continue with post-high school education than are currently doing so. To meet the industrial hiring requirements of the future, the high school population should be trained approximately as follows:

Twenty percent in occupational programs
Twenty percent in vocational programs
Twenty percent in pre-technical programs
Forty percent in college preparatory programs

The specific levels of education required for entry level positions as recommended by industry and the curricular requirements are discussed in later sections of this report relating to current and proposed occupational, vocational, and technical programs.

NEW INDUSTRIES

The need for new industries in the Pittsburgh SMSA has been discussed in Section II of this report. The community agencies and associations working on this problem have been mentioned. In order to determine the reasons why many newer types of industry have not located here, we contacted seventeen companies throughout the United States which are opening new branch plants in various parts of the country. They were asked why branch facilities had not been established in the Pittsburgh SMSA. The following list indicates the reasons most commonly given. It will be noted that the lack of trained personnel in highly skilled and technical occupations was the major reason given by these companies. The lack of education and the age of the average worker in the labor force were also cited by most of the companies contacted.

Why New Industries Do Not Come to Pittsburgh

1. Lack of trained personnel in highly skilled and technical levels.
2. The above-average age of the available labor force and the below-average education of those available for employment.
3. The lack of post-high school educational facilities except traditional high cost institutions, and the resultant small percentage of high school graduates who either attend or complete college or a technician level of education.
4. The lack of nearness of other similar type industries for sub-contract purposes.
5. The cost of labor and the local and state tax structures were listed by some of the companies, but very few of them gave these as major reasons. In fact, more than one-half commented on the small per capita expenditure for education. Most of the new industries which should eventually locate in Pittsburgh will primarily employ technicians, engineers, and other highly skilled and trained personnel. Labor costs in these classifications will not be the problem which some local companies report as serious in the unskilled, semi-skilled, and some skilled classifications.

Validation checks were made by personal contact with wenty-one other national industries. These covered nearly very type of manufacturing, fabrication, and distributive ndustry. They re-emphasized the reasons listed above and xplained:

1. That industry will not move into an area with a declining economy unless local industries are attempting to do something about it by:
   a. Expansion
   b. Diversification
   c. Capital investment
2. That industry will not move into an area with a declining economy unless local and state governments are attempting to do something about it by:
   a. Public investment in highways, schools, etc., which would bolster the economy and increase private investments.
   b. Adequate public investment in the population to make the people of the area able to participate in and maintain an expanding economy.
   c. Establishing adequate cooperative arrangements between urban, suburban, and rural areas to assure that all the people of the state work together to establish and maintain an expanding economy, regardless of which area receives the initial benefits.
3. That industry of the present and future will not move into an area which continues to live in the past. The economy of 1900 did not meet the requirements of 1940 and even less meets the requirements of today and tomorrow.

RECOMMENDATIONS FOR INDUSTRY

The following recommendations should be considered by the industries of the Pittsburgh SMSA. These relate directly to the survey findings reported in this section. Other recommendations which pertain to both the schools and industry are made in the section on vocational education.

1. Industries must standardize their job classifications, job names, and employment criteria as much as possible to assist the schools in developing adequate curricula.
2. Employers must become more familiar with current and proposed school courses and curricula, particularly in the various areas of vocational and technical education.
3. Industries on an individual or on an association basis must make definite arrangements with schools of all levels for the addition and modification of curricula as required.
4. Every industry, regardless of size, should provide guidance and counseling for its employees in matters of company policy, education, training, and performance evaluation.
5. Industries which offer employee services such as training, should assist, through their associations, other industries which do not have such services by collecting and exchanging materials, techniques, etc.
6. All industries must increase their knowledge of the continuing education and training which are being completed by employees. Such information should be utilized in evaluation and promotion, and must be coordinated with educational institutions and industrial training departments.
7. Greater and continuing coordination with the schools must be arranged. Industries should train staff to conduct cooperative studies of the schools' programs. In addition, industries should study their own costs of recruiting as related to costs of adequate training.
8. Industries of the area should take the initiative in establishing an Industry-Education Council which would coordinate industrial employment and training needs with present and proposed school programs. Coordination should involve all levels of education and companies of all sizes. More details concerning such a working council will be covered in the vocational education section of this report.
9. Every industry, regardless of size, must provide or arrange for training programs, at least in the areas of orientation, indoctrination, and on-the-job training.

   In addition, the larger companies must offer programs in specialized skill training, professional training, and supervisory development. The following items relate to industries by general size grouping in connection with training operations:

   a. Industries of over 1,000 employees should offer all types of organized training programs. The larger industries often deal directly with the smaller companies on a Prime-Sub contract basis. Often production, inspection, and other standards must be the same. It is therefore doubly important that knowledges and skills be related and that there be a uniformity of classification and of training. It is recommended that the large industries assist the smaller companies, working with them as subcontractors in developing and maintaining classification and training programs. It is not necessary that the large companies provide special services or facilities, but advice and referral assistance can certainly be offered.

b. Industries with from 500 to 1,000 employees also must offer employee training of all types. Such industries are large enough to employ at least one full-time training coordinator. Generally a training coordinator should be required for at least every 1,000 employees. This does not include instructors who should be obtained from specialty departmental areas.
Company policy and organization should be reviewed in most companies of this size, particularly as they pertain to personnel activities and in relationship to other companies to whom work is referred or for whom sub-contracting work is performed.

c. Industries with 100 to 500 employees should have at least a part-time training coordinator to determine needs, structure courses, evaluate programs, and counsel employees. This can be a joint operation handled by a personnel manager or a salary and wage analyst, but this individual must be proficient in training techniques. He must be allowed sufficient time to coordinate the needs of his company with the educational institutions in the area, either individually or through an industrial association. This size company should offer training at least in the following fields: orientation, indoctrination, on-the-job training, and specialized skill traini
Other training as required should be arrang
for with other agencies or schools.

d. Industries with under 100 employees should a
have training. No industry is too small to pl
for the adequate training of its employees. T
determination of training needs and arrangi
for courses must be the responsibility of t
manager of even the smallest companies. T
following possibilities should be considered:
   (1) If the owner-manager or supervisor h
   taken courses in or is familiar with pe
   sonnel policies and training techniqu
   and if he can allot the time to training,
   should perform this function himself. T
   needs of every employee within his cu
   rent job and for advancement must
   known by management or by manager
   representatives.
   (2) If no supervisor in a small company is ab
   to handle this problem, then a group
   small companies should band together a
   employ a training specialist or a traini
   consultant to determine their needs and
   structure or arrange for required pr
   grams. One full-time training speciali
   would be required for approximately 5
   employees. However, if this number
   employees involves more than five con
   panies, the ratio should be decreased
   one trainer for each 300 employees.

Small industries expect specialized training to be give
by the schools. As is explained in this report, much of th
is possible. However, the school system will never be ab
to provide complete training of a specific nature in eve
industrial occupation. The schools and the small compani
must meet together to determine their mutual needs a
responsibilities.

SECTION IV

EDUCATIONAL FACILITIES

Approximately 163,000 students either attend public and private schools of all levels in Pittsburgh or are residents of Pittsburgh and attend post-high school institutions in other parts of the SMSA. Forty-seven percent attend tuition free public schools and 53 percent attend either private schools or public institutions which charge tuition comparable to private schools. In the following sub-sections, the scope and type of education available in Pittsburgh are discussed.

ELEMENTARY AND SECONDARY ENROLLMENTS

Public Schools

As of September, 1962, there were 186,051 students enrolled in public elementary and secondary schools, kindergarten through twelfth grade in Allegheny County, excluding the City of Pittsburgh. Pittsburgh city schools enrolled 76,642 during that month.

Total enrollments in Beaver County were 43,932; in Washington County, 45,067; and in Westmoreland County, 71,661.

Parochial Schools

As of September, 1962, there were 62,590 students enrolled in Catholic parochial schools in Allegheny County. The diocese which covers the SMSA enrolled 132,500 students. Of the Allegheny County total, 51,371 were in schools in the City of Pittsburgh.

Included in the above totals were 10,883 secondary students in the City of Pittsburgh. There were 5,729 secondary students in the rest of Allegheny County, and 1,657 in the diocese outside of the county.

Other Private Schools

There are fourteen other private schools in Pittsburgh which enroll elementary and secondary students. Some of these schools extend from nursery through high school. Total enrollments as of January, 1963, were 2,240 students.

Vocational Students

The regional office of the State Department of Public Instruction shows a registered enrollment of vocational students of 3,808 in Allegheny County of which 2,587 are in the Pittsburgh Public Schools.

Beaver County has 221 students in vocational programs. There are 49 in Washington County and 938 in Westmoreland County.

The very small percentage of high school students enrolled in vocational programs is discussed in detail in Sections V and VII of this report.

JUNIOR COLLEGES

There are no public junior colleges or community colleges in Pennsylvania except the quasi-public junior college in Hershey.

Several private schools offer one, two, and, in a few instances, three years of post-high school work in limited curricular areas. The most comprehensive of these schools in Pittsburgh is Point Park Junior College which enrolls students in seven curricula. The day school enrollment is 892. There are 427 students in evening school.

Robert Morris School of Business enrolls approximately 1,500 day and 800 evening students in three business related curricula.

The McKeesport campus of Pennsylvania State University offers two programs leading toward an Associate in Arts Degree in Technology. In 1962 there were 30 graduates in drafting and design technology and 22 graduates in electric and electronics technology. Currently, there are 42 enrolled in drafting and 33 in electronics. The total enrollment is approximately 450. Most of these students are taking lower-division work and will transfer to four-year programs. By 1970 the school expects to enroll 1,100.

The New Kensington campus graduated 25 in drafting in 1962 and 11 in electronics. Currently 19 are enrolled in drafting and 25 in electronics.

In total, seven of the thirteen Pennsylvania State campuses offer two-year programs. By 1970 it is expected that the total enrollment in A.A. degree programs will be 10,000.

The University of Pittsburgh has an off-campus school, Johnstown College, which enrolls 700 students in a two-year liberal arts program. In addition, the University plans to offer technician level training in fields such as dentistry, x-ray, laboratory, and the physical and biological sciences. This program began in September, 1962, with an eleven-month course to train dental assistants.

Other Private Post-High Schools

The Department of Public Instruction, as of June, 1962, had licensed private business schools in the City of Pittsburgh with total enrollments of 3,262. There are an additional 428 students in other areas of Allegheny County. Included in this group are schools offering stenography, secretarial science, automation, and general business. Nearly all the private business schools require high school graduation.

Licenses had also been issued to several private trade and/or technical schools. Enrolled are 3,721 students in the City of Pittsburgh and an additional 30 in other areas of the county. These schools offer post-high school work in several skilled trade and technical occupations.

Cost of Post-High School Education

Tuition charges range from a low of $525 to over $1,500 per year in the schools mentioned above. The need for expanded public educational facilities on a free or nearly free basis is discussed in Sections VII and VIII of this report.

COLLEGES AND UNIVERSITIES

There are thirteen colleges or universities located in, or primarily serving, the Pittsburgh Standard Metropolitan Statistical Area. Total undergraduate enrollment during the fall semester 1962-63 was slightly over 22,000 in the day schools. In addition, there were 5,700 graduate students for a total of nearly 27,700 full-time day students.

Twenty-seven hundred and forty undergraduates were enrolled in engineering curricula; there were also 607 graduate engineering students. These totals do not include the two-year technological courses offered at the two local campuses of the State University.

In the field of mathematics there were 873 undergraduates and 185 graduate students. There were 1,275 undergraduates majoring in physical sciences, and 375 graduate students in these fields. Nine hundred and thirty-three undergraduates and 60 graduates were enrolled in biological science programs.

Seven of thirteen colleges in the area offer evening school programs with total enrollments of 7,771 students. Of this number 6,443 are undergraduate and 1,328 are graduate students.

Twenty-eight hundred and seventy-nine are enrolled in engineering programs — 2,707 at the undergraduate level and 172 at the graduate level. In mathematics and the various sciences there are 198 undergraduate and 81 graduate students.

College Enrollments

College enrollment is increasing, depending on the school and curricula. During the last five years enrollments have increased in the thirteen colleges studied from 32 percent to 155 percent.

Enrollments have increased more rapidly in state colleges and/or teaching curricula. Engineering school enrollments have increased at the lowest rate. In fact, in the Pittsburgh SMSA, engineering enrollments have decreased by 18 percent since 1956. This decline follows approximately the national trend since the peak enrollments in 1957. Factors related to the need for additional engineers and technicians are discussed in Section VII of this report.

EDUCATION IN PENNSYLVANIA

In its final report presented in April, 1961, and in the nine monographs which preceded the final report and covered specific phases of education in Pennsylvania, the Governor's Committee on Education made recommendations on many important factors pertaining to the need for additional educational facilities.

Two supplementary publications related to cost and expenditure data of individual school districts and the historical trend comparing Pennsylvania education with that in other states. These twelve reports should be reviewed by anyone interested in the educational needs of the state and the relationship of state to local financing.

Some pertinent facts reported by this committee follow. Specific items relating to fiscal policies are discussed in Section VIII of this report.

1. In 1960, the State of Pennsylvania was 37th among the states in per capita expenditure for education. Preliminary 1962 reports indicate that it is now in the 31st position. This, however, must continue to change so that Pennsylvania can rank at least at the median of the 10 large industrial states.
2. Pennsylvania has no public community colleges, only one land grant university, and no public liberal arts colleges; less than 2 percent of its students are in junior colleges, none of which are public. All the large industrial states except Pennsylvania provide junior college education.
3. Pennsylvania has not followed the national trend in college education in that 70 percent of its college students are enrolled in privately controlled institutions of higher learning.
4. College attendance by high school graduates varies materially by counties: Montgomery County sends over 40 percent to college; Fulton County, approximately 5 percent; and Allegheny County, about 28 percent. Two-thirds of the communities send a fourth or less, which is below the state average. Only one-fourth send from 25 to 30 percent; and only six counties, 30 percent or more.
5. College-attending population tends to go in greater numbers if colleges are near enough to commute. Students also go in greater numbers when the nearby college is relatively low in cost.
6. Of the 10 largest states, Pennsylvania exceeds only 1 (Texas) in the percentage of students attending college. In Pennsylvania 28.5 percent of the high school graduates attend college. Nationally 50 percent attend. In Massachusetts 55 percent attend and in California, 60 percent.
7. Of the 10 largest states, Pennsylvania requires the largest payment by college students with 42 percent of the total income received from student fees. The United States average is 25 percent; and California's charge is the lowest, or approximately 11 percent.
8. Pennsylvania State University, the only public university, charges tuition fees of $480 to $525. Tuition charges are exceeded only in New Jersey. California and New York City require no tuition.
9. College-age population in Pennsylvania now totals slightly over 600,000. By 1965 this will increase to 700,000, and by 1970 to over 800,000. Assuming a continuing increase in the percentage of attendance, it will be necessary for the state to provide at least double the amount of post-high school education now available.
10. The Commonwealth pays approximately one-half of the cost of public elementary and secondary education and over half the cost of all public education. Such assistance to school districts, however, varies from some 20 percent in the City of Pittsburgh to 90 percent and more in small rural areas.

College Completion

Annual reports made by the Department of Public Instruction of Pennsylvania indicate a gradual increase in the percentage of high school graduates attending college. In 1940 only 14 percent entered college. This increased to 19 percent in 1950, and currently it is about 28 percent. Of those entering, however, there has been little or no increase in the percentage completing college. Of 1,000 students who entered the first grade in 1939, only 860 finished the eighth grade; 535 graduated from high school; 103 entered college; and 50 graduated from college. Only 5 percent of the total school population continued their education through four years of college. The last statistics published by the Department of Public Instruction covered the year 1961 and reported that 609 of the original 1,000 pupils graduated from high school and 175 entered college. The expected ratio of completion remains at 50 percent. Therefore only 87 or 8.7 percent of the original enrollment will complete college.

In the average school district in Pennsylvania 87.2 percent of curriculum development time and 65 percent of guidance and counseling time is allocated to students planning to attend college and to college preparatory curricula. Therefore, a very small percentage of school time or finances is geared to provide counseling or educational facilities for the 91.3 percent of the students who do not complete four years of college.

Holding Power of Secondary Schools

The 1962 Statistical Report from the Superintendent of Public Instruction shows that the holding power of secondary schools in Pennsylvania, as measured by enrollments in grades 9 through 12, has increased materially each decade. In 1930 it was 52 percent. In 1940 it was 65.1 percent. By 1950 it had increased to 67.4 percent, and by 1960 to 77.6 percent.

The holding power from the first through twelfth grade was 62.7 percent in 1961. This percentage has been continuously increasing. For example, in 1945 the holding power was only 40.4 percent.

The number of dropouts is smaller proportionately than the national average. In the 14- to 17-year age group 88 percent are attending public or private schools. Eighty-two percent of those 16 and 17 years of age are attending schools. Dropouts on a national basis range from nearly 70 percent to as low as 5 percent.

THE PITTSBURGH PUBLIC SCHOOLS

This survey is primarily concerned with the Pittsburgh Public Schools. Following sections will report on specific aspects of education and administration. In this section we are concerned with statistics relating to enrollments, post-high school education, general curricular emphasis, dropouts, and related subjects.

Enrollments

Total enrollments in the Pittsburgh Public Schools have increased continuously year by year. The enrollment figures which follow are as reported for September of the year indicated. From 1950 to 1962 enrollments have increased from 69,743 to 76,642. On a biannual basis the increases have been as follows:

Year	Total Enrollment
1952	71,525
1954	72,164
1956	72,214
1958	72,976
1960	73,986
1962	76,642

From 1950 to 1960 there was a 6.08 percent increase which conforms closely to the combined population changes reported on page 6 of Section II for the 5- to 14-year age groups and the 15- to 19-year age groups.

From 1960 to 1962 the increase was an additional 3.59 percent. This indicates a continued population increase in the lower age groups although the over-all population is still declining.

Kindergarten and Elementary Schools

There was an increase from 43,205 in 1950 to 47,819 in 1962. There were 45,414 in 1952, 45,632 in 1954, 45,853 in 1956, 46,325 in 1958, and 47,013 in 1960.

Junior High Schools

Enrollments by years were 11,282 in 1950, 10,897 in 1952, 10,925 in 1954, 10,789 in 1956, 10,191 in 1958, 11,104 in 1960, and 11,288 in 1962.

Senior High Schools

There was an increase from 11,824 in 1950 to 14,306 in 1962. Enrollments for other years were 11,814 in 1952, 12,129 in 1954, 12,138 in 1956, 13,003 in 1958, and 12,468 in 1960.

Vocational High Schools

There was a decrease from 2,879 in 1950 to 2,681 in 1962. Enrolled in other years were 2,847 in 1952, 2,891 in 1954, 2,880 in 1956, 2,943 in 1958, and 2,823 in 1960.

The remainder of the total enrollments reported above involved part-time students. These varied from 553 in 1950 to 548 in 1962. These students are mostly from parochial schools and are taking a limited number of courses in industrial arts.

Adult school enrollments are not listed. These will be covered in Sections VI and VII.

Enrollment by Curriculum Choices

As of January, 1963, there were 14,465 students enrolled in senior high schools, grades 10, 11, and 12. The following tabulation indicates the number in each curriculum and in each grade. Totals are also given by curriculum and grade.

Students Enrolled by Curriculum and Grade

Curriculum	GRADES 10	 11	 12	Curriculum Totals by
Academic	1,938	1,633	1,232	4,803
General	1,847	1,606	1,211	4,664
Business	1,334	1,113	727	3,174
Vocational	699	638	487	1,824
Totals by Grades	5,818	4,990	3,657	14,465

From the enrollments listed above, it can be seen that there is a sizeable decrease in each curriculum from year to year. This is due to many factors but primarily to drop-outs and to the moving of families out of the area. A percentage analysis by curriculum follows:

Academic

The Academic Curriculum was selected by 33.21 percent of the students. There is a decrease of 15.74 percent between the 10th and 11th grades and a decrease of 24.56 percent between the 11th and 12th grades.

General

The General Curriculum was selected by 32.24 percent of the students. There is a decrease of 13.05 percent between the 10th and 11th grades and a decrease of 24.59 percent between the 11th and 12th grades.

Business

The Business Curriculum was selected by 21.94 percent of the students. There is a decrease of 16.57 percent between the 10th and 11th grades and a decrease of 34.68 percent between the 11th and 12th grades. These are the highest percentages of decrease for any curriculum.

Vocational

The Vocational Curriculum was selected by 12.61 percent of the students. There is a decrease of 8.73 percent between the 10th and 11th grades and a decrease of 23.67 percent between the 11th and 12th grades. These are tho lowest percentages of decrease for any curriculum.

Averages

Decreases between grades for all curricula show a 7.19 percent decrease between the 9th and 10th grades, a 14.23 percent decrease between the 10th and 11th grades, and a 26.71 percent decrease between the 11th and 12th grades.

The total decrease between the 9th and 12th grades is 41.67 percent. It is 37.14 percent between the 10th and 12th grades.

School Organization

The City of Pittsburgh has developed a very heterogeneous organization of its elementary and secondary school structure. Even though the Board of Public Education has established a general policy which would provide 6 years of elementary education, 3 years of junior high school education, and 3 years of high school education, the school organization currently is as shown below.

In the elementary structure:
  - 2 schools enroll students from kindergarten through the 3rd grade.
  - 30 enroll from kindergarten through the 8th grade.
  - 56 enroll from kindergarten through the 6th grade.
  - 1 enrolls from the 1st through the 6th grade.

In the secondary structure:
  - 7 schools enroll students from the 7th through the 9th grade.
  - 9 enroll from the 7th through the 12th grade.
  - 1 enrolls from the 10th through the 12th grade.
  - 3 enroll from the 9th through the 12th grade.
  - 5 vocational high schools enroll from the 9th through the 12th grade.

The use of buildings is even more diversified. Eig
of the schools include only elementary students. Five sch
include elementary and junior high school grades. One
cludes elementary and vocational programs under sepa
administrations. One includes elementary, junior high,
senior high divisions. Two are limited to junior high sch
students. Four enroll only vocational students. There
school for children with physical handicaps. Eight ho
junior high school and senior high school students. F
are limited to senior high school students.

To a great extent this problem has been forced on
Pittsburgh Public Schools because of the lack of adequ
finances. However, much of it can be corrected by m
adequately planning school size and curricular offerin
These factors are discussed further in Section VII of
report.

Advanced Curricular Offerings

The Pittsburgh Public Schools offer excellent edu
tional opportunities in several curricular areas. Most
these are related to academic and/or college preparat
work. The graduates from the Academic Curriculum
prepared in a superior manner for admission to most
college or university in the nation. Two of the more
cently developed programs are discussed below.

Team Teaching

A very effective team teaching program was initia
in September, 1960, in five elementary schools. Some 4,0
students were involved in the program during the first ye

In September, 1961, the program was extended to th
additional elementary schools and to two junior hi
schools. Total student involvement was 7,500.

In September, 1962, the program in the two hi
schools was enlarged. Total enrollment has increased
that currently there are 7,746 students enrolled in te
teaching programs.

The next expansion is planned to occur in Septemb
1963, when 9th grade students will be added, perhaps b
in the junior high schools and in the four-year high sch
programs.

Advanced Placement Programs

Advanced placement programs began in the Pittsbur
city schools in 1959. During that year there were 5 clas
in 4 schools in English; 4 classes in 3 schools in Europe
history; 4 classes in 1 school in American history; and
classes in 3 schools in science and mathematics, includi
biology, chemistry, physics, and calculus. The 17 clas
available in 1959 were increased to 20 as of Septemb
1962. There are now 5 classes in English; 4 in Europe
history; 6 in American history; 1 each in second-y
biology, physics, and chemistry; and 2 in calculus. Clas
average approximately 20 students in size; therefore,
proximately 400 students are participating in the advanc
placement program.

These programs have been very effective, and seve
colleges and universities are participating. Funds to expa
during 1963 are available from two foundations. Class
to be added are in biology, chemistry, and mathematics.

The concept of advanced placement to be successful requires that the school be dedicated to the intellectual development of the students, that a course of study be prepared for the able with major emphasis on academic subjects, that there be early identification of the able and potentially able, that counseling encourage able students to take advanced academic work, and that cooperative agreements on advanced placement be worked out with colleges and universities. All these factors exist in the Pittsburgh program.

Distribution of Graduates by Post-High School Activity

The Division of Pupil Services of the Pittsburgh Public Schools has reported the following information concerning post-high school attendance by the graduating classes of 1958, 1960, and 1962.

Distribution of High School Graduates

	1958		1960		1962	
	Number	Percent	Number	Percent	Number	Percent
College or University	805	24.46	1,026	27.05	921	26.53
Vocational or Trade School	52	1.58	76	2.00	54	1.56
School for Nursing	93	2.83	108	2.85	67	1.93
Business School	157	4.77	188	4.96	164	4.72
Other School	42	1.28	94	2.48	106	3.05
Total Post-High School Attendance	1,149	34.92	1,492	39.34	1,312	37.78
Total Graduates	3,291	100.00	3,793	100.00	3,471	100.00

Post-high school attendance had been increasing each year since World War II to 1960. It dropped to 25.29 percent in 1961 and has not yet regained the 1960 peak. The economy of the area and the ability of parents to pay the cost of education are directly related to the percentage of students who attend post-high school institutions in an area where educational costs are high.

A report on 2,169 graduates of the 1959 classes in Pittsburgh made as a follow-up study two years after graduation, developed the following facts:

1. The percentage who continued their education on a full-time basis was 32.5.
    a. 30.0 percent attended colleges or universities.
    b. 2.5 percent attended other schools such as technical, business, nursing, etc.
2. There were 37.0 percent employed full time in 1961.
3. There were 5.5 percent unemployed.
4. 12.0 percent had entered the military service.
5. The remainder, 13.0 percent, were in miscellaneous classifications. Most of them were homemakers.

The jobs obtained by the 37.0 percent employed were in the following groupings, by percentages:

1. Clerical and kindred occupations	68.0 percent
2. Semi-Skilled	9.0 percent
3. Unskilled	3.3 percent
4. Sales	6.5 percent
5. Personal services	8.2 percent
6. Semi-professional	3.5 percent
7. Miscellaneous work fields	1.5 percent

The statistics and information listed above pertaining to 1959 graduates conform very closely to similar information obtained by the Division of Pupil Services during a follow-up study of 1956 graduates of 12 comprehensive high schools. This study was published in 1958 and should be referred to by anyone interested in occupational fields of employment, fields of preparation by college students, and a percentage breakdown of those students attending post-high schools and those working.

General Educational Standards and Services

The educational standards and services maintained by the Pittsburgh Public Schools are high. In general they exceed standards of the area. However, most programs relate primarily to college preparatory work. Specific references will be made to Pittsburgh programs and services in the following sub-sections pertaining to education in general.

ACADEMIC, VOCATIONAL, OR COMPREHENSIVE EDUCATION

Too many educators in all levels of schools have developed some serious problems within their institutions. Depending on their individual interests or on the specific course areas they teach, they have attempted to make their schools into single purpose institutions. Too often the courses or area taught, or the curriculum taken by an individual, are the only subjects he considers important. He believes they must be taught to all students or they will be failures or social misfits. This extreme attitude is found in both the so-called academic groups and in those which suggest only vocational education.

Some of the arguments heard from the exponents of the completely academic institutions follow:

1. Every student must have a general type education so that he will be able to understand life and society.
2. High school students should all be guided into college preparatory majors, and junior college students should all be working toward an A.A. Degree and should later obtain at least a baccalaureate degree.

3. Vocational type programs should not be taught since they prepare for specific jobs which may be "dead-end."
4. The academic standing of the school must be guarded. Therefore, only academic curricula should be offered.

The advocates of completely vocational curricula argue in part that:

1. General or academic subjects other than the basics are not needed in our industrial society.
2. All high school students should be trained for an occupation.
3. Degrees are not important; that practical knowledge and abilities are what count.
4. The schools should offer the courses industry needs for the immediate job. Advanced study after employment will take care of other educational needs.

Fortunately many of our teachers and school administrators do not adhere to either extreme view. They believe that the schools, at all levels, should meet the total educational needs of the society they serve. They believe in and are working for truly comprehensive educational institutions, not for either a single purpose academic or vocational school.

We agree with this comprehensive educational viewpoint and suggest that:

1. Every student who has the interests and abilities be encouraged to get as much education as possible.
2. Students at all levels, from high school through college, be given more opportunity to select a curriculum, whether academic, vocational, or a combination, to prepare them for the jobs they desire and are able to perform.
3. No curricula be entirely academic or vocational but a logical balance of the two to meet the needs of the student and the requirements of society and industry.
4. Every curricula be modified to meet time standards as set by the length of time the individual student will remain in school.

All levels of schools in Pittsburgh are concentrating on the academic approach. Colleges and universities have dropped technical programs and no other post-high school unit has been available to pick up such training. The high schools in the City of Pittsburgh offer a limited amount of vocational training but, as explained in Sections V and VII of this report, much more emphasis and modernization are necessary.

Prestige Education

Many high schools and most colleges and universities are attempting to become prestige institutions. By doing so they often do not provide opportunities for the average student or student only slightly above average. It is not difficult for a school to become a prestige institution. If it limits enrollments, maintains high admission standards, and offers relatively limited curricula, it can usually establish some excellence and considerable prestige in these areas.

Some such prestige colleges are praising the American high school and indicating that high school graduates are far more able to do well in college than they were several years ago. Every such institution, however, is making this statement on an erroneous concept. For example, one such school enrolled students in 1951 at an average of the 75th percentile of high school graduates. In 1961, the average freshman was at the 97th percentile. This does not mean the average high school student had raised his percentile average, since by definition half of the graduates would be under the 50th percentile. It means that the school has become so restrictive in admissions that it is taking only the top 3 percent of the high school graduates. This does not even speak well necessarily of the level or type of instruction such an institution must offer since there undoubtedly is some mental level, whether it be the 97th or the 99th percentile, where a student can learn without much instruction.

This type of institution, whether at the high school or the college level, does not meet the needs of the students of this country nor of industry. It is not practical for schools to educate only the top percent of the students, whether rated on an intelligence factor, or motivation, or even financial status. We need more than prestige institutions which limit their offerings and enrollment. There is no reason why such institutions should not continue to operate as they now are, but the American public is charged with the responsibility of providing adequate education at all levels for the remaining majority of our young people since it is not practical to allow them to swell the unemployment ranks or fall into unskilled labor classifications because of lack of education.

Institutions which provide programs to educate all students who are educable to the extent of their capabilities and desires meet the needs of our society far more than limited purpose prestige schools. In many areas of the United States the junior college, some state colleges, and a few private schools offer this broad base and diversification. In Western Pennsylvania the high school programs must be expanded and strengthened, and post-high school institutions must be established to provide the type of education required by those students who will enter general employment classifications.

The elementary schools must also bolster their offerings, particularly in the basics which should be mastered by the student at the elementary level. The number of high school and college courses required in remedial reading, remedial English, etc., is alarming. Elementary education is generally improving. There is more emphasis on subject matter, more use of technical aids, laboratories, etc. Team teaching is increasing. By 1965, it is estimated that over 30 percent of all elementary and secondary schools in the nation will be using some version of it. More emphasis, however, is necessary in requiring the use of all teaching methods necessary to teach all elementary students. Too often the dropout rate is determined in the elementary schools where the student first encounters his continuous failure sequence. Failure cannot be used as a means of teaching or of forcing students out of school. All education for all levels of students must be based on a series of successes. This requires better, more adaptable teaching. A method can no longer be taught to an entire class as a course. Each course should be taught by as many methods as necessary to make it effective for all.

Several educators have suggested that reading, writing, arithmetic, and most of the history and social sciences required by the average worker can be covered before a student completes the 10th grade. High schools and colleges could then concentrate on these areas only for the students desiring further liberal arts education. However such courses would be available to all on an elective basis. Schools then can concentrate a little more on job and sociological preparation during the last two years of high school and in post-high school work, if they are allowed to start from a more adequate base developed in the elementary, junior high, and the first year or two of high school.

The additional education and training required of the average student in our changing technological society does not mean that we should extend the number of years over which the same amount of learning is acquired. It does mean that there must be a continuing extension and improvement in the amount of learning given at each level of education in order for the individual to have adequate training to meet current industrial and sociological standards.

This emphasis on prestige education must be modified in the Pittsburgh area. Status, prestige, and recognition must not be limited to any one curriculum. Prestige and acceptance must be built into every curriculum and course offered, and there must be a curriculum geared to the abilities and needs of every group of students for whom public education has responsibility.

Not all students, not even all good students, are interested in science, mathematics, and language as presently taught. Several core curricula must be developed modifying these courses. Since a large percentage of students do not finish high school and less than 30 percent of those who do continue on to college, any program restricted to the academically talented and interested students is not enough. Such a system is not fair to the students or the public. In fact, since it is so discriminatory and restrictive, it is not even American in its concept. The right of choice is a fundamental principle of democracy, but what choice does a student have in a "prestige high school"? Some educators would give them the right only to go to college or drop out. Are such students dropouts or "forceouts"?

DROPOUTS

All studies dealing with dropouts, of which we are aware, build a direct correlation between the number of students leaving school for employment, or for other reasons, to the following:

1. The current economic situation and the employment market.
2. The availability of diversified educational programs.
3. The quality and availability of counselors.
4. The administrative attitude toward poor performers, thereby causing "forceouts" which are classified in the over-all dropouts statistics.

In considering dropouts there is a problem of definition, particularly in the high schools. Many reports indicate dropouts to be all students who do not complete a diploma program. Other high schools classify anyone as a dropout who leaves school before the compulsory attendance age even though he may have graduated. Therefore, a comparison of national statistics is very difficult.

In other sections of this report, we have indicated the decreased need during the next several years for unskilled and untrained workers. Therefore, the dropout will have an increasingly difficult time finding adequate employment. The schools thus should place more emphasis on the development of interests in employable skills. This must be particularly emphasized at the high school level, and additional expansion of vocational and industrial education programs must be established which will give students sufficient skills to make them employable. More students must be counseled and guided into skilled trade areas and vocational areas in the adult school programs and in junior colleges, if such programs are made available in Pennsylvania. Any counselor of the future who clings too strongly to unrealistic values of prestige attached to academic courses must be reoriented or reassigned. It is far more advisable sociologically to keep a student in his own school which offers a comprehensive program than to allow him to drop out or to seek experiences and/or education elsewhere.

National Comparisons

The Commissioner of Education estimates that 2.5 million of the approximately 11 million students now in our secondary schools nationally will drop out before completing high school.

Nationally, unemployment among teenagers who are not in school is twice the rate of unemployment among the general population. This ratio has been increasing by approximately 2 percent per year and, if solutions are not found by 1970, the unemployment rate among teenagers will be at least three times as high as that of the general population.

Of the 26 million new workers who will enter the labor force during the '60s, a minimum of 7,500,000 will have dropped out of school before receiving a high school diploma or before learning a saleable trade.

The incidence of dropping out of school is not spread uniformly among the population. Most dropouts (approximately 80 percent) are in the lower economic classes, living in deprived areas of major cities with a heavy representation of minority groups. The national urban dropout rate exceeds 50 percent between the 9th and 12th grades. In vocational programs the national rate ranges from over 75 percent to as low as 8 percent. The range depends on the following factors:

1. The availability of employment locally.
2. The adequacy of vocational curricula and the extent to which industry accepts the graduates.
3. The cost of programs at the post-high school level.
4. The policy of local labor organizations in accepting new members.

Mental retardation causes some dropouts. This percentage, however, is relatively negligible (under 4 percent) and has remainded rather constant since 1900. The basic causes of the larger problem involve social and cultural forces. In addition, the presently organized secondary structure which concentrates on academic proficiency is simply not a meaningful way for the average non-academic student to spend his time, since he does not intend, because of finances or other reasons, to continue his education beyond high school. His inability to relate what goes on in school, whether due to his family background or expectations about his future life role, makes him feel he does not belong in school; therefore, he leaves as soon as he legally can or sometimes sooner.

These factors actually result in more "forceouts" than dropouts. Applying a single standard to all students and adhering to the perstige college entrance requirements develops a tendency on the part of most teachers to fail those students who do not conform rather than to attempt to teach them what they are able and willing to learn. Most schools prefer, under their present administrative structure, to get rid of such students rather than to modify curricular areas in order that they can offer adequate educational opportunities.

The dropout rate can be affected materially by expanding industrial programs with particular emphasis on work-experience programs. It is easy to forget that we do not have compulsory education, nor will we ever have it. The best we can ever attempt to have is compulsory attendance. Therefore students must be motivated to learn, since many studies reveal that they learn only when they are ready to do so and when they consider learning to be of value to them as individuals.

Vocational education has not been the answer for these students. Such programs have generally been conceived as providing technical schools for those not preparing for higher education. However, entrance requirements to such programs have been approximately the same as entrance requirements to most state colleges. In fact, in Pittsburgh the average I.Q. of the vocational student who has enrolled in the last year is approximately two points higher than that of the students in the comprehensive structure. No program is currently in existence which provides any type of job-centered training for the groups of average and below-average intelligence, nor are programs available for students with below-average motivation regardless of intelligence level.

Dropouts in Pittsburgh

Pittsburgh and Pennsylvania, as a whole, have a better record on retention of students through high school than the nation. Refer to page 27 for figures relating to the holding power of secondary schools and to pages 27 and 28 for percentage decreases by curriculum for high school grade levels in Pittsburgh.

Due to the nature of the school population in Pittsburgh (as in most urban areas) the dropout rate is 11 percent higher than the state average. However the Pittsburgh dropout rate is 14 percent lower than the averages in other large urban areas in the Midwest and eastern parts of the nation. Enforced school attendance laws and more adequate than average counseling have been responsible for fewer dropouts.

From records made available by the school counselors, reports by the Division of Pupil Services, and from a recent study conducted on dropouts by the Health and Welfare Association of Allegheny County, the following facts were obtained concerning dropouts:

1. At the time of last school attendance the dropouts were distributed by age as follows:
   a. 38.1 percent were 16 or younger.
   b. 46.2 percent were 17 years old.
   c. 15.7 percent were 18 or older.
   The median age for all dropouts was 17.4 years. The girls were 17.1 years and the boys were 17.6 years of age. Students who were dropouts averaged 4.6 months older than the average of their classmates.
2. The highest percentage of dropouts are from the Business Curriculum. The lowest percentage are from the Vocational Curriculum. Dropouts from the Academic and General Curricula average approximately the same and are about 2 percent lower than from the Business Curriculum. (See pages 27 and 28.)
3. The average dropout was 1.1 years behind the grade expected by age. However, 23.1 percent were equal to or higher than the age-expected grade placement.
4. The median I.Q. was 87.2. Nearly 10 percent had above average intelligence, 20 percent had average intelligence, and the remaining 70 percent had below average intelligence.
5. The average dropout was more than 2 years behind his grade in reading ability and 2½ years behind in mathematical ability as measured by achievement tests.
6. The Health and Welfare Association reported on the current work status in 1962 of students who were dropouts during 1959, 1960, and 1961:
   a. 23.4 percent had never been employed.
   b. 40.5 percent had been previously employed but were not employed at the time of the survey.
   c. 36.0 percent were employed at the time of the survey.
   d. 72.5 percent of those employed at the time of the survey held jobs as private household workers, service workers, or laborers. Most of the girls were employed as household workers. Most of the boys were employed as service workers or laborers.
   e. The majority of the dropouts indicated a favorable attitude toward possible participation in a work-training program.

National studies on dropouts by the U.S. Department of Labor reveal the following data:

1. 63 percent of the dropouts had I.Q.s in the normal range (85-109) and 6 percent were above normal (110 and higher).
2. 35 percent left school because of adverse school experiences.
3. 27 percent of the girls quit school to get married.
4. Over 80 percent of those who quit were grade-retarded by at least one year.

The statistics for dropouts in Pittsburgh do not vary materially from the national, and the solution to the problem is the same. Each school district must provide educational experiences which more adequately motivate the students who are potential dropouts. Each school must help the students build substantial bridges between school and the world of employment by offering curricula which meet the needs of all students and all employers.

COUNSELING AND GUIDANCE

Counseling and guidance services must deal with all pupils at all levels of education and should serve all adjustment areas whether they be health, social, educational, or vocational. It is important that students, teachers, counselors, and parents associated with all types and levels of schools and curricula know the work and common aims of one another.

The multipurpose aspect of counseling must include individual analysis which will enable the counselor:

1. To give the student and parents an understanding of the student's educational and occupational strengths and weaknesses.
2. To help evaluate educational and career opportunities.
3. To help the student and parents develop appropriate educational plans whether in academic or vocational areas.
4. To stimulate and motivate the student to attain educational and career goals.
5. To follow up the student's post-school activities and progress and make research reports on the findings.

The counselor should assist each student in evaluating his potential for a vocational area and motivate him to follow this evaluation. However, once a student has made a choice of curriculum, vocational or otherwise, it cannot be assumed that he cannot or should not change. It may be that the student would be better served by another program in the school. Counseling must be realistic, flexible, and continuous.

To provide such services, the counselor must have a great deal of information about academic programs and schools, and about the 25,000 occupations available in the United States. He must help fit the individual student into a program which is interesting, practical, and attainable.

In order to do good vocational counseling, the counselor:

1. Must know the classification and description of major jobs.
2. Must know the training and work placement facilities.
3. Must know the occupations in which there is the greatest demand, opportunities for advancement, employment security, shortage of available workers, and shortage of competent workers.
4. Must have information as to what jobs will be available to the students upon graduation.
5. Must provide each student with occupational information about vocational areas in which training is provided. Students should be taught as much as possible about the nature of work, job ranges, opportunities, hazards, skills required, knowledge needed, and other major factors concerning the occupations in which they are interested.
6. Must assist in every way possible in making job placements.

To do such an expansive job, the counselor must be extremely well prepared and must have enough time to allot to each student to permit complete coverage of the student's needs.

Guidance is necessary at the elementary school level where habits and attitudes are most malleable. Here the collection of information and records must begin.

At the junior high school level counseling must be expanded. The student's regular program should include many exploratory experiences related to the world of employment. He must be given knowleges of work opportunities and be helped in assessing his own abilities, attitudes, and aspirations.

At the senior high school level further counseling expansion is required. All of the factors discussed above must be available to every student and to his parents.

In Pennsylvania, the Governor's Committee on Education has recommended:

1. That the state provide fiscal support for counseling in the ratio of one counselor for 400 secondary pupils and one for each 1,200 elementary pupils.
2. That every school district offer effective guidance which:
   a. Should be an integral part of vocational education.
   b. Should begin in the elementary school and continue as long as the individual has need for the service.
   c. Should not be general guidance but rather vocational guidance to match ability and interest with job needs and requirements.
3. That each school district establish in-service training for existing counselors to upgrade them into vocational advisers.
4. That effective preparation focus as much attention on the people to be trained and their needs, as on the areas and occupations that need workers.
   a. Groups must be identified in high school who will continue through college, who will continue in post-high school institutions, and who will enter employment from high school.
   b. Special needs must be analyzed which would include the dropouts, special students requiring sheltered workshops, the groups to be involved in work-study programs, and "co-ops."
5. That guidance counselors be given the responsibility for following-up both the graduate and the dropout groups. Such follow-up should continue until the student has reached 21 years of age.

Counseling and Guidance in the Pittsburgh Schools

Counseling and guidance are well developed and administered in the Pittsburgh Public Schools. Regular meetings and seminars are held to help assure uniformity of concept and to share problems, opinions, and methods. The total counseling staff, including special placement personnel and administration, consists of 50. With this number it has been necessary to confine counseling and guidance primarily to the secondary schools. Only on special request is counseling available in the elementary grades.

To meet the standards recommended by the Governor's Committee on Education, Pittsburgh would require a staff of 111 counselors. Forty would be required to serve the 47,819 elementary students, 28 would be necessary for the 11,228 junior high school students, 36 would be required to serve the 14,306 senior high school students, and 7 would be required for the 2,681 vocational high school students. This, of course, is not possible under present financing arrangements, but the staff certainly must be expanded in order to be able to offer all the services required.

In 1959 the Pittsburgh schools, with the assistance of the County Planning Committee, published "Work Opportunities in Greater Pittsburgh." A great deal of very important information is contained in this publication, and it is used to good advantage in the secondary schools to assist in the guidance of students. This material, if used in combination with the Department of Labor's "Occupational Outlook Handbook," "The Dictionary of Occupational Titles," and the continuous recommendations of industrial advisory committees, would enable the guidance personnel to give vocational counseling to students at all levels and in all curricula. At present, however, counseling is limited too much to college preparatory and academic areas. This is partly due to staff limitations and partly to philosophical concepts held by many of the counselors.

To at least the same extent that teaching methods must be continually modernized, it is necessary to review our approach to student counseling and guidance. Guidance personnel in the schools have been doing a good job with the information and facilities available to them, and considering the attitudes with which they have been indoctrinated. It is difficult to counsel adequately a student who brings from his home a predetermined concept of what courses he should take and of what job he desires. The realization of the potential of adequate guidance must be explained and sold to the parents and to society. Too often a student talks to a counselor only in terms of a fixed objective, irrespective of his abilities or of the job possibilities. Therefore many counseling sessions involve only the reviewing of college entrance requirements to cover a predetermined, hoped-for course of study suggested by the child or by the parent.

None of the schools studied have adequate personnel to give complete counseling and guidance to all students, utilizing performance, aptitudes, abilities, interests, and job potential. Many students check with the counselor only when required to do so, believing that counseling is for the delinquent or socially or academically inadequate student. Students and the public must be educated to overcome this feeling and to make counseling and guidance the extremely important function they must be during the next few years when change will be the normal. Because of this constant change of requirements and job opportunities, counselors and guidance personnel must have continuously current information regarding conditions as they are today and as they probably will be when the student graduates or completes a prescribed curriculum.

The heavy turnover in industrial jobs and the high dropout rates are indications of the inadequate guidance the students obtain from their counselors and of the inadequate courses the students actually take.

Guidance in the schools should be balanced more adequately than at present. Most counselors are very familiar with liberal arts and college preparatory programs. They are not familiar with vocational or technological occupations and the needs of industry. Therefore, too few students are counseled in areas of need and of the students' potential interests. There should be more equitable balance between liberal arts and technological and vocational counseling. It is unfortunate that credentialing as a counselor can be obtained in Pennsylvania without any course in or knowledge of occupational, vocational, or technical job standards, availability, or training requirements.

It is recommended that special seminars be conducted for counselors at all levels, beginning with the elementary school, in order that counselors may be made aware of the needs of society and the relationship of course structure and curricular offerings to such needs. In most of the schools in the nation, the counseling staff comes entirely from academic and/or college preparatory subject areas. Counselors have been trained in counseling and guidance techniques but have not been trained and do not have available information concerning job opportunities and the knowledges, aptitudes, and interests required for these jobs.

It is emphasized that complete counseling must begin at the lowest possible school level. Complete information must be made available to the students on employment possibilities and how these relate to specific abilities and interests prior to the time that major subject areas are decided upon.

RECOMMENDATIONS

Recommendations pertaining to education and educational facilities will be found at the end of Sections V and VII. The following recommendations apply specifically to the material contained in this section:

1. Public junior colleges, community colleges, and/or post-high school technical institutes must be established in Pennsylvania. This is necessary for the proper preparation of the work force and the building of an adequate economy.
2. High schools, colleges, and universities must work more closely together to coordinate courses offered and to make certain that proper credit is received by a student who transfers from one school to another or into another level of education. The knowledge of the student must be the determining factor rather than the number or name a course may have been given by a particular school.
3. More high school graduates must be motivated to attend and complete college. The percentage of students from Pennsylvania attending college is one-half that for the nation; this cannot continue. The cost of higher education must be modified to allow a larger percentage of students to obtain the education they need and want.
4. The school organization plans in the Pittsburgh city system must be modified to allow true elementary, junior high, and senior high schools to exist as separate units. If the 6-3-3 plan is in effect, it should be followed or a different plan should be adopted and followed.

5. Advanced placement programs should be continued and expanded. This must have no adverse effect on the expanding of other programs which must be developed to meet the needs of the total school population.
6. The Pittsburgh Public Schools must develop a proper balance between academic and vocational curricula which will enable them to operate a truly *comprehensive* system which will meet the needs of all students and the entire society.
7. Prestige and acceptability must be built into every curriculum offered by the schools.
8. Dropouts must be controlled more adequately by making certain that the schools do not force students out of school and by offering a complete continuum of curricula which meet the needs, interests, and abilities of all students.
9. Additional counseling and guidance personnel are required in order to cover adequately the needs of all students from the elementary grades through the high school.
10. More complete counseling and guidance are required. Personnel must be trained in all phases of guidance and must continue working with students after graduation on a follow-up of their post-high school education and/or employment.

SECTION V

VOCATIONAL EDUCATION

Most of the recent educational developments in this area of the state have been directly related to academic curricula. New programs have been started and have proved effective. Included are television education, team teaching, advanced placement, saturation English, and the Curriculum Continuity Demonstration. The Pittsburgh schools are successfully collaborating with local colleges and universities in projects for curriculum development and the retraining of teachers.

All of these programs, however, have affected less than 20 percent of the student population. No programs have been implemented or materially modified in the system for the remaining 80 percent since general curriculum development was considered under a Veterans Administration appropriation for vocational education in 1945.

Major problems which have adversely influenced vocational and occupational programs have been:

1. How to get the school administration to accept and support vocational education as an equal part of the total school program.
2. How to obtain financial support for such programs, particularly in the areas of capital investment and amortization of capital depreciation.
3. How to recruit and select adequate personnel for the teaching of vocational subjects.
4. How to get the entire school staff to understand, support, and work with occupational and vocational programs.
5. How to enlist the interest of students and obtain adequate enrollments in vocational programs.
6. How to determine the needs of industry and convert such needs into curricula which would adequately prepare the student and which would be accepted by industry.

What is obviously needed is a truly liberal academic community in which the study of art and typewriting, of philosophy and metal working, of theology and medicine, of pure and applied science are, though admittedly very different, judged to be equally honorable and valuable in their several ways.

In this section existing vocational programs in Pennsylvania and in the Pittsburgh area are discussed and compared and problems relating thereto are explored. Specific recommendations concerning new programs and the improvement of present offerings are contained in Section VII of this report.

FEDERAL VOCATIONAL LEGISLATION

The federal government has participated financially in vocational education since the enactment of the Smith-Hughes Act in 1917. This act covered programs in agriculture, home economics, and trade and industrial training. In 1934 the George-Deen Act was enacted which added distributive education to the federally participated programs. The George-Barden Act later authorized annual appropriations for all programs included under the Smith-Hughes and George-Deen Acts.

Under these federal acts the states were required to submit a state plan for vocational education which had to be approved by the federal agency responsible before funds were made available for distribution through the state agency to local school districts. Under the current Pennsylvania plan the school districts receive $35.00 per pupil enrolled in trade and industrial and agricultural programs, $20.00 per pupil in homemaking, and $50.00 per pupil in distributive education. Additional allowances are made for approved travel related to these programs.

Evening programs are reimbursed on a teaching unit basis. Eighty percent of $4.00 per hour paid a teacher is reimbursed, or a maximum of $3.20 per hour, if the rate paid is $4.00 per hour or more.

Under provisions of the federal enabling legislation relating to trade and industrial programs, which are the largest in number nation-wide, the following types of programs may be operated under an approved state plan:

Type A. Classes of this type require that one-half of the time of the student in school be devoted to training and instruction in the practical work of the occupation or on a productive basis. Twenty percent of the total school time is devoted to instruction applied specifically to basic technical or other related information necessary to practice the occupation. Thirty percent of the time is devoted to approved general education subjects.

Type B. Classes of this type require that one-half of the time be devoted to training and instruction in the practical work of the occupation and 50 percent of the time to approved general education subjects including any subjects basic to the technical requirements of the job. (All participating day school programs in Pittsburgh are of Type B.)

Type C. Classes of this type are conducted for adults and out-of-school youth. These can be operated for unemployed persons to prepare them for initial employment or for employed persons for upgrading or job changing purposes. Training will be terminal for the individual when the trainees are qualified for employment. Six to eight hours a day for five days each week are preferred, but daily training sessions may be less than six hours and the number of sessions may be less than five per week at the discretion of the local school.

Other specific provisions and restrictions relating to these programs are contained in the Schools Laws of Pennsylvania. They are not reproduced here due to space limitations. Proposed revisions are discussed in Section VIII of this report.

Other federal acts which provide funds to states and school districts for vocational education are:

1. The Health Amendments Act of 1956 which authorizes practical nurses training.
2. The National Defense Education Act of 1958 which, under its eight titles, authorizes technical training and provides funds for science and language programs and for developmental educational work.
3. The Area Redevelopment Act which provides funds for short term training programs for the unemployed in depressed areas.
4. The Manpower Development and Training Act of 1962 which provides a three-year program of occupational and allied general education for unemployed persons. This act offers training to both unemployed and employed persons in order to update and upgrade their skills. It provides for 100 percent federal support for such training during the first two years. State participation on a 50-50 matching basis is required for the third year.

REDEVELOPMENT TRAINING

Section 2508.3 of the School Laws of Pennsylvania has been effective since 1957 and provides for the retraining of the unemployed. During the 1957-58 school year, 1,761 persons were enrolled in 7 different subject matter areas; 884 completed the courses, and of these 741 were placed in gainful employment. The average cost per student has been approximately $150.00.

The principal fault with this program is that there is not enough money and there are not enough courses offered to affect the unemployment situation materially. Training some 1,700 to 1,800 persons a year is accomplishing little as compared to the half million plus who are out of work state-wide.

Little has been done with 2508.3 programs since ARA and MD and T programs were made available through federal legislation. The following comparisons prepared by the Section on Vocational Education and Industrial Arts of the Pittsburgh Public Schools show the basic differences between the three programs.

Differences in the Three Types of Redevelopment Training

	2508.3	A.R.A.	M.D. & T.
Initiated by	State Employment Service and DPI	State Employment Service and DPI	State Employment Service and DPI
Geographical Areas	State-wide	Depressed Areas	State-wide
Operate & Control	Local School District	Local School District or Private Agencies	Local School District or Private Agencies
Financed by	State	Federal through State	Federal through State; as of 1964-65 State and Federal
Length of Courses	Short and Intensive	Short and Intensive Usually 16 weeks	1 year Maximum
Trainees	Unemployed	Unemployed	Young or Unemployed or Under-Employed
Trainee Reimbursement	None	Subsistence	Subsistence
Trainee Placement	State Employment Service	State Employment Service	State Employment Service

It is not the purpose of this survey to discuss retraining or redevelopment programs. However, in this section and in Sections VII and VIII it is necessary to consider the total vocational education program since many interrelationships exist in connection with equipment, facilities, instructional personnel, administration, and fiscal policy.

CURRENT VOCATIONAL PROGRAMS

The Pennsylvania State Chamber of Commerce has estimated that a continuous enrollment of from 158,000 to 165,000 pupils is necessary in vocational education programs to provide Pennsylvania's industries with trained replacements. On this basis 12.3 percent of the total number of skilled workers in any field should be attending vocational courses in that field. This standard is based on a retirement rate of 2.3 percent, a death rate of 1 percent, plus a 25 percent allowance for those not entering the trade. This totals 4.1 percent which, times three years of vocational education, equals 12.3 percent.

The Chamber also states that industries which are expanding or relocating are becoming increasingly critical of the skills and training of the labor supply. They are also critical of vocational education programs and their ability to cope with changing job requirements. These are usually the major factors considered in the selection of a planned location.

The schools of Pennsylvania are not meeting this replacement standard. During 1960 there was a total of 98,203 students in vocational programs. This has materially decreased over the last two years. For example, in the trade and industrial programs, 27,506 were in attendance in 1960, and as of December, 1962, the Pennsylvania Department of Public Instruction reported a total state-wide high school enrollment of 18,177 in trade, industrial, and technical areas. This is broken down as follows: trade and industrial, 16,057; practical nursing, 239; technical, 1,881.

Twenty-four percent of the trade and industrial enrollments (4,258) are found in schools which enroll fewer than 150 students in such courses.

Vocational Programs in the City of Pittsburgh

Vocational programs have been conducted in Pittsburgh since 1895. The following historical summary shows the highlights of program development:

1895 Vocational education began at the Fifth Ward Manual Training School.

1898 The first class of 23 boys graduated from Fifth Ward's 3-year program.

1904 The first industrial department on the secondary level opened at Allegheny High School.

1907 Clifford B. Connelley was appointed the first supervisor of industrial education in Pittsburgh.

1911 The addition of Section 1902 to the School Code provided for vocational education.

1912 North and Irwin Avenue schools were opened as elementary industrial trade schools.

1915 The enactment of the "Child Labor Law" influenced the growth of vocational education.

1916 The first vocational trade school on the secondary level opened at Ralston Industrial School with Loron H. Turner as principal.

1917 The Smith-Hughes Act was passed providing federal aid for vocational education.

1923 The privately owned Allegheny Rehabilitation Trade School was purchased by the Board of Public Education and opened as the Allegheny Trade School.

1924 The Grant Street School opened as a trade training center.

1926 The Irwin Avenue Industrial School opened as the first trade school for girls.

1928 The second floor of the 21st Street Warehouse was remodeled into two shops. Somers Elementary School became Somers Trade School.

1930 The Clifford B. Connelley Vocational High School opened as the largest and most modern trade school in the country.

1932 Arsenal Trade School was razed to make room for a new junior high school building. Trade school students were transferred to Washington Vocational High School.

1936 The George-Deen Act increased federal aid for all day trade programs.

1937 Distributive education was introduced at Langley High School.

1940 South Vocational High School opened with an enrollment of 204 boys.

1946 The George-Barden Act provided federal aid for part-time and trade extension programs.

1950 Morse Vocational School closed, and the program was transferred to South Vocational High School.

1957 Bellefield Girls Vocational High School was destroyed by fire. Arsenal Junior High School was closed and then reopened as Arsenal Girls Vocational High School.

1960 Irwin Avenue Girls Vocational High School closed and the program was transferred to Arsenal Girls Vocational High School.

1962 The Board of Public Education received a grant from the Buhl Foundation to conduct a survey of vocational education.

Vocational school enrollments reached their peak in 1939-1940. As of Mach 1, 1940, there were 4,209 boys enrolled in day trade and industrial classes and 1,280 girls. This compares to 2,112 boys and 448 girls in January, 1963. Therefore, there has been a decrease of 49.82 percent in the enrollment of boys and a decrease of 65.00 percent in the enrollment of girls. With very few exceptions the same courses were offered in 1940 as are currently available. In fact, the lack of change and modernization of the programs has been the primary reason for decreased public acceptance and decreased enrollment.

The following tabulation shows the enrollments and courses offered in the five vocational high schools in Pittsburgh. Three of these schools, Allegheny, Connelley, and Washington, enroll only boys. One school, South, enrolls mostly boys but includes girls in the office machines, clothing, and cosmetology programs. One school, Arsenal, enrolls mostly girls but has a few boys from time to time in the food service program.

Trade Courses Offered in Pittsburgh Vocational High Schools

Courses	Allegheny	Arsenal	Connelley	South	Washington
Automotive	87		140		113
Baking				46	
Body and Fender				48	
Bricklaying			44		53
Cabinet Making	53		90	38	109
Carpentry			46		
Clothing, General		48		52	
Commercial Art			46		
Cooking		42			
Cosmetology		50		50	
Dressmaking		81			
Electric Appliance					61
Electric Power				50	
Electric Wiring	50		56	48	61
Electricity, Industrial			107		
Food Service		86			
Foundry			28		
Machine Shop	51		102	73	62
Office Machines		47		41	
Plumbing			57		
Printing			115		
Radio and Television			49		
Sheet Metal	48		53		
Shoe Repairing				38	
Trade Drafting			56		
Welding			25		
Totals as of January, 1963	289	354	1,014	484	459

As indicated on page 28, the ratio of high school students enrolled in vocational curricula is 12.61 percent of the total. This, however, does not mean that this percentage of Pittsburgh Public School students have selected vocational curricula. In fact most of the students in vocational schools come from parochial schools or other private or out-of-district schools. Students enrolling from the district's public schools have, over the last five years, ranged from 2.6 percent to 3.7 percent. Of the current 9th-grade students in the vocational schools, 69 percent have enrolled from parochial or other schools and only 31 percent have enrolled from the public schools. This means that only 3.4 percent of the public school enrollment have selected vocational curricula. Since the vocational schools offer curricula in service, semi-skilled, and skilled work areas, the enrollment should be at least seven times the present ratio. Percentages of students who should enroll in the various occupational, vocational, and technical curricula are discussed in Section VII of this report.

Most of the trade and industrial students are in school full time, spending half their time in shop activities and half on academic subjects. Cooperative work-experience programs are engaged in by 138 of the students.

Evening School Enrollments

As of March, 1963, 49 vocational, trade, and industrial classes were offered in 5 Pittsburgh city high schools in evening programs. The total enrollment was 1,080. These programs included the major curricula listed above for the day school T and I programs. Actually, all the day programs could be offered at night, if adequate enrollments were obtainable.

Other evening school vocational programs, in which there is state or federal financial participation, include practical nursing (26 students) and distributive education (144 students). Twenty-one apprenticeship classes enroll 419 students. Therefore, 1,669 is the total number of students enrolled in vocational evening school programs. Of this number, 46 are enrolled in Veterans Training Programs.

As of March, 1940, there were 4,074 enrolled in such programs. There has been a decrease of 59.03 percent in vocational evening school programs and enrollments over the last 23 years.

In addition to the vocational programs offered in the evening, general education courses are available in 10 high schools. Combined general evening school enrollments total

3,171 students. Subjects covered include most of the academic and business courses offered in the day school academic, general, and business curricula.

Distributive Education

In the Pittsburgh Public Schools there are currently 27 boys and 36 girls enrolled in cooperative distributive education programs in three high schools.

These cooperative work programs involve approximately 50 percent of the student's time in the school and 50 percent in work experience (a minimum of 15 hours per week). Most of the students in cooperative programs are receiving their work experience in variety stores or department stores. In addition, however, a few are trained in music stores, drug stores, grocery stores, service stations, hotels, restaurants, etc.

Apprenticeship

The number of indentured apprentices in the Pittsburgh SMSA has been continuously decreasing for the last several years. Although apprentices are still receiving training in 49 of the 75 basic occupational areas reported by the United States Department of Labor, the percentage of apprentices has decreased 14.9 percent from December, 1959, to September, 1962. The total number of apprentices has declined during that period from 2,485 to 2,114. Recent reports from the schools conducting related apprenticeship programs indicate that this decline is continuing.

In the Pittsburgh city schools there are currently 419 apprentices in 21 classes. This is less than half the number of students and programs which existed in 1940.

Retraining

As of March 1, 1963, there were three state 2508.3 programs in the Pittsburgh schools. In homemaker service there were 55 students, 49 were enrolled in food service supervision, and 215 in practical nursing. Although these programs were started under provisions of Section 2508.3, one was completed as of March 15, 1963, and the other two are reimbursed out of federal George-Barden funds. Therefore, there are no true state retraining programs in operation.

There are no programs currently in operation under the Area Redevelopment Act although courses in appliance repair and ignition and carburetion mechanics have been offered during 1962.

Under the Manpower Development and Training Act of 1962 the first Pennsylvania programs got under way in September, 1962. As of January, 1963, instruction was being given in 36 industrial areas. There were 76 retraining programs involving approximately 2,600 unemployed workers. New proposals are being submitted regularly, and it is planned that an additional 7,500 workers will be trained during 1963.

In the Pittsburgh city schools, as of March, 1963, there were 6 programs in operation. Two, involving 52 students, are operating in electronic mechanics. Twenty trainees are enrolled in operating room technology, 26 as refrigeration mechanics, 21 as pantry men, and 20 as food preparation specialists (cooks).

National Defense Education Act

NDEA funds have been made available for the following programs in Allegheny County:

1. Data processing, computer programming, electronic technician, and engineering aid technician in both evening and day programs at Forbes Trail Area Technical School.
2. Mechanical drafting (day Type B program), electronics technician, electric power, and instrumentation technician in evening programs at Connelley Vocational High School, Pittsburgh.
3. An evening program in ferrous metallurgy at South Vocational High School, Pittsburgh.
4. An evening program in chemical technology, and day programs in design technology and communications technician at McKeesport Vocational High School.
5. An evening program in chemical technician, electronic power, and hydraulic instrumentation, at Clairton High School.

Through June 30, 1962, the Pittsburgh city schools had received some $33,600 from NDEA appropriations. Additional reimbursements due as of that date exceeded $48,000 from the several titles of the act.

Late in 1962 the State Plan for Vocational Education in Pennsylvania authorized the operation of technical education programs on the basis of 10 periods per week of shop and laboratory work rather than the former 15-hour requirement. To meet this specification, a school must have an approved vocational program and the course must be in a field of technology related to national defense. The student must be able to complete three full years of shop and laboratory work. The academic phase must include mathematics, science, English, and social studies equal in content to those presented to college preparatory students. In general, participation would be from NDEA Title VIII funds.

No such programs have been started in the Pittsburgh city schools. In fact, there are no true technical programs except under MD and T and the evening programs, listed above under items 2 and 3, in the Pittsburgh schools.

Other Vocational Programs in Allegheny County

Area Technical Schools

Currently the only area technical school operating in Allegheny County is the Forbes Trail Area Technical School which is located in Monroeville. Fifteen school districts are participating in the program. In addition, students are enrolled from several county parochial schools. The school is offering technical programs only, under two plans. Both of these require two years for completion.

Plan one includes students at the 11th and 12th grades; plan two enrolls students at the 12th grade and for one year of post-high school work. Currently the following programs are being offered:

1. Electronic Technology
2. Civil Construction Technology
3. Auto Diesel Technology
4. Merchandising and Retailing Technology
5. Data Processing Technology

6. Computer Programming Technology
7. Chemical Technology
8. Computer Maintenance

As of January, 1963, there were 372 students enrolled in the above programs. These students came from district high schools in which there was a total enrollment of 9,853. Therefore, 3.78 percent of the high school population of the participating districts are enrolled in technical programs.

The Forbes Trail Area Technical School has excellent equipment for its programs. This was participated in by NDEA to the extent of 50 percent of the costs. Planning and research money was also made available by the state from NDEA funds.

Other County Programs

Most county high schools districts do not operate vocational or technical programs, nor do they currently participate in area technical programs. The three largest vocational programs, excluding those of the City of Pittsburgh and Forbes Trail, are described below by school:

1. This school enrolls 192 day students in drafting, machine shop, pattern making, and electricity. There are 233 enrolled in evening school classes in machine shop, pattern making, electricity, drafting, welding, industrial chemistry, and mine maintenance. There are MD and T programs in house appliance repairmen and related apprentice programs for machinists, electricians, and pattern makers; and an ARA program in practical nursing.
2. This school enrolls 479 day students in auto mechanics, beauty culture, cabinet making, commercial art, electricity, electric motor repair, machine shop, pattern making, and sheet metal. Fifteen students are enrolled in an evening school class in chemical technology. Seventy students are enrolled in related apprentice programs for boilermakers, bricklayers, electric wiremen, instrument repair, machinist, pipefitter, and rigger. There are NDEA programs in mechanical drafting and communications technology. MD and T programs are being proposed on a large scale. Currently 25 students are enrolled under MD and T in electronic mechanics.

   This school serves almost as an area school. Approximately 50 percent of the students are tuition students from other districts. This program is one of the best operated in the county and offers a good general education background in addition to the technical skills. Each vocational student meets the normal Carnegie unit requirement for college entrance. Last year's graduates enrolled in 22 colleges.
3. Two school districts are involved in this program, and students are transferred between districts to eliminate course duplication. In one school 168 students are enrolled in day programs in electronic technology, auto mechanics, carpentry, drafting, and trowel trades. There are 128 enrolled in evening classes in electric circuits, advanced electricity, auto mechanics, and drafting. Related apprentice work is offered to plumbers, steamfitters, and the trowel trades. In the other school 121 day students are enrolled in beauty culture, electrical maintenance, machine shop, and pattern making. There are 40 students enrolled in two apprentice programs and in electric maintenance and machine shop.

Advisory Committees

Advisory committee organization is poorly developed for most of the vocational programs in the Pittsburgh SMSA. Recommendations on committee functions and organization are made in Section VII of this report.

In connection with retraining programs in the Pittsburgh Public Schools, the following advisory committees are functioning:

1. Pantry Worker and Food Preparation Specialist Committee. This committee functions for both pantry workers and cooks. The membership consists of four schools representatives and three employer representatives.
2. Operating Room Technician Committee. This committee consists of nineteen hospital and/or professional representatives, three school representatives, one MD and T representative, and two State Employment Service representatives.
3. Refrigeration Mechanic Committee. This committee consists of six employer representatives, one union representative, one State Employment Service representative, one MD and T representative, and four school representatives.

These retraining committees met approximately once a month while developing the programs and courses of study. They now meet every three months as an evaluating group.

Three committees have functioned in the past on state 2508.3 programs in the areas of practical nursing, food service, and homemakers service. They now meet infrequently on a call basis.

Seven Joint Apprenticeship Committees are functioning. They are:

1. Sheet Metal Joint Apprenticeship Committee. This committee is composed of six union members, six management members, and school representatives.
2. Steamfitters Joint Apprenticeship Committee. This committee is composed of four union members, four management members, and school representatives.
3. Plumbers Joint Apprenticeship Committee. This committee is composed of four union members, four management members, and school representatives.
4. Carpenters District Council Joint Apprenticeship Committee (includes millwrights, carpenters, and cabinetmakers). This committee has membership from all of Western Pennsylvania. There are twelve union members, twelve management members, and school representatives.
5. Bricklaying Joint Apprenticeship Committee. This committee is composed of five union members, five management members, and school representatives.

6. Printing Technology Joint Apprenticeship Committee. This committee is composed of four union members, four management members, and school representatives.
7. Structural Iron and Bridge Workers Joint Apprenticeship Committee. This committee is composed of six union members, six management members, and school representatives.

All of the Joint Apprenticeship Committees except Printing and Bricklaying meet once a month for six months during the school term. The Printing and Bricklaying Committees meet on call as needed.

Two other apprenticeship committees have been functioning. They are:

1. Baking Committee. This committee is composed of eight members of the Retail Master Bakers Association, both retailers and wholesalers. It meets monthly or bimonthly as required.
2. Painting Committee. This committee is composed of five union members. It meets periodically with no regularly scheduled meetings.

A Non-Union Plumbing Committee of six members meets monthly during the evening school year. All the members are master plumbers.

A Distributive Education Advisory Committee meets on call approximately twice a year. Members of the committee represent many of the business firms which participate in cooperative work programs. Most of the members represent department stores.

Equipment

The equipment available in the Pittsburgh vocational schools is old and in many instances so obsolete that it should not be used to attempt to train in modern programs in trade and industrial areas for the current labor market. The average age of the shop equipment is 37 years. Several items which are still being used have not been manufactured since 1902. It would require a minimum of $240,000 to bring the equipment up to acceptable current standards for training. Little or no repair and/or replacement has been possible due to budgetary limitations. Vocational shop equipment should be amortized over a 5- to 20-year period, depending on the type and use of the equipment items.

Equipment needs and budgetary requirements are discussed in Section VII of this report.

Vocational Department Organization

Currently the Section on Vocational Education and Industrial Arts in the Pittsburgh city schools consists of ten employees. This includes a director, a supervisor of trade and industrial education, a supervisor of industrial arts, a part-time supervisor of distributive education, a supervisor of retraining (related primarily to MD and T programs), two coordinators involved in the coordination of trade and industrial cooperative work programs, and three clerical personnel, including a secretary, a clerk stenographer, and a stenographer.

In Section VII the organizational structure and requirements for an adequate vocational department are discussed. In addition present conditions relating to curriculum development, course outlines, course modifications, quality and methods of instruction, teacher recruiting and student placements are analyzed and recommendations for improvements are made.

RECOMMENDATIONS

In this section we have recorded facts and statistics pertaining to the vocational programs as they currently exist. In Section VII, proposals are made for the modification, expansion, and improvement of all types of occupational, vocational, and technical education and training. All recommendations relating to present programs are therefore contained in Section VII following the analysis of present and proposed curricula.

SECTION VI

STUDENTS AND THE COMMUNITY

In preceding sections we have reviewed the needs of industry for personnel, the training required, and the programs offered and planned by various levels of educational institutions. The needs of industry and the offerings of the schools must be coordinated. However, it is extremely important that all training and education be geared to student availability and to parent and community interests and standards. Therefore, in this section we review survey findings obtained from students, parents, adult school students, labor organizations, and the unemployed. Their reactions to vocational and technical education and employment are reported and analyzed.

THE SURVEY OF STUDENTS

Questionnaires regarding curriculum choice, job interests, and expected additional education were completed by all students in the 9th and 12th grades in the Pittsburgh city school system. General information relating to curricular areas of study was tabulated from all the replies. Complete information on all items was taken from a random sampling of 20 percent of the questionnaires by age group and by type of school. All the questionnaires were returned to the originating school to be filed with the records of the individual students. The questionnaire used is reproduced on pages B-20 and B-21 of the Appendix.

Post-High School Education Anticipated

The following tabulation indicates the degree and type of post-high school education contemplated by the high school majors in which the 9th-grade students are enrolled.

It will be noted that 67.57 percent of the 9th-grade students expect to take some post-high school work. This is approximately double the percentage who enrolled in such programs during the last five years.

Post-High School Education Anticipated by 9th-Graders

Curriculum	4 yrs. College or More	2-yr. Business or Junior College	Special Purpose School	Technical School	High School Graduation
Academic					
Boys	89.38%	1.77%	0.00%	2.21%	6.64%
Girls	73.96%	6.51%	13.02%	0.00%	6.51%
General					
Boys	34.69%	2.31%	2.31%	23.12%	37.57%
Girls	15.29%	14.01%	28.03%	1.91%	40.76%
Business					
Boys	9.38%	28.13%	3.12%	3.12%	56.25%
Girls	6.07%	47.20%	7.48%	1.87%	37.38%
Vocational					
Boys	9.80%	3.92%	.98%	6.86%	78.44%
Girls	0.00%	0.00%	7.14%	7.14%	85.72%
Composite					
Total	39.69%	14.08%	8.17%	5.63%	32.43%
Boys	51.59%	3.94%	1.13%	9.94%	33.40%
Girls	28.52%	23.59%	14.79%	1.59%	31.51%

The following tabulation indicates the degree and type of post-high school education contemplated by the high school majors in which the 12th-grade students are enrolled.

The 81.40 percent who expect to complete some post-high school education represent more than double the percentage who probably will actually attend. The most unrealistic groups are those in the General Curriculum who plan to attend college, the large percentage in the Business Curriculum who contemplate post-high school education, and the vocational students who plan further college or technical school work.

Post-High School Education Anticipated by 12th-Graders

Curriculum	4 yrs. College or More	2-yr. Business or Junior College	Special Purpose School	Technical School	No Further Education
Academic					
Boys	88.52%	1.64%	1.64%	8.20%	0.00%
Girls	76.47%	9.41%	12.94%	1.18%	0.00%
General					
Boys	24.37%	3.36%	17.65%	0.00%	54.63%
Girls	13.04%	6.52%	50.00%	0.00%	30.44%
Business					
Boys	0.00%	75.00%	12.50%	0.00%	12.50%
Girls	5.88%	78.82%	14.12%	0.00%	1.18%
Vocational					
Boys	0.00%	33.33%	14.82%	51.85%	0.00%
Girls	5.26%	10.53%	10.53%	0.00%	73.68%
Composite Total	41.88%	19.76%	14.87%	4.89%	18.60%
Boys	49.64%	7.61%	10.14%	8.70%	23.91%
Girls	32.77%	34.04%	20.42%	.43%	12.34%

Reasons for No Post-High School Education

The students who indicated that they would not continue their education beyond the high school level gave as the major reason their lack of financial ability to do so. This accounted for 22.76 percent of those not planning to attend post-high school educational institutions. Lack of finances as a reason ranged from a high of 62.50 percent of the 12th-grade boys enrolled in the Business Curriculum to a low of 6.82 percent of the 9th-grade girls enrolled in an Academic Curriculum. Most of the 43.62 percent who plan to attend post-high school institutions, and who will probably not do so, should be added to this group. Lack of finances will be the predominate reason for changing the minds of these students. If free post-high school education were available, they probably would attend as has been found true in states which provide this opportunity. Therefore a total of over 60 percent of the students will not continue their education due to lack of finances. 13.96 percent gave lack of ability as the major reason. Other reasons given did not statistically conform to grade levels or curricula and are therefore not tabulated.

Schools Students Plan to Attend

Of the total students planning to attend post-high school institutions, 12.60 percent indicated they would attend a local university. This ranged from a high of 26.72 percent of the 12th-grade boys enrolled in academic courses to a low of 0.00 percent for 12th-grade boys and 9th-grade boys enrolled in the business curricula, and 12th-grade boys, 12th-grade girls, and 9th-grade girls enrolled in the vocational curricula. Several of the responses indicated lack of adequate counseling or understanding. For example, 14.71 percent of the 9th-grade boys enrolled in vocational curricula stated they plan to attend local universities.

7.93 percent of the students planning to attend post-high school institutions indicated they would enroll in a state college.

18.94 percent stated they would enroll in a local junior college or business college.

17.06 percent said they would enroll in a post-high school technical institute.

43.47 percent indicated they would attend colleges or universities in other parts of the state or nation.

Selection of Careers

Of the total 9th-grade students responding to the questionnaire:

1.16 percent selected distributive occupations.

1.24 percent selected unskilled jobs.

2.73 percent selected business occupations.

19.52 percent selected the clerical field.

3.97 percent selected semi-skilled jobs.

11.83 percent selected skilled jobs.

13.15 percent selected service occupations.

33.19 percent selected professional occupations.

1.41 percent selected technical occupations.

6.53 percent indicated the armed forces.

.66 percent indicated they would become housewives.

3.89 percent said they had not as yet selected an an occupation.

The 12th-grade students listed the following job area selections:

None of the students in any curricular area selected an occupation at an unskilled level.

16.20 percent selected a business career (3.16 percent of the boys, 32.17 percent of the girls). All of these students are currently enrolled in business curricula. 41.66 percent of the boys and 74.11 percent of the girls taking business courses selected a business occupation.
5.40 percent of the total group selected clerical occupations (1.90 percent of the boys, 9.69 percent of the girls).

.52 percent selected distributive occupations.

.17 percent selected semi-skilled occupations.

8.36 percent selected skilled occupations.

16.72 percent selected service occupations.

13.42 percent selected technical occupations.

30.49 percent selected professional occupations.

1.92 percent selected managerial or administrative occupations.

3.14 percent indicated the armed forces.

3.66 percent listed no occupational choice.

These selections by occupational groupings do not relate to job opportunities. The students have not been given enough assistance in planning for job preparedness. These percentages should be related by the students, parents, and the counseling service to the industrial needs, and more realistic selections should be encouraged as well as more realistic preparation. See Sections II and III for further discussion of this problem.

Occupational Interests

The students not only indicated occupations for which they planned to train, but other occupational areas in which they were interested.

The totals below will exceed 100 percent since most students indicated an interest in more than one occupational area. Many stated that the area of first choice was based more on expected realization than on interest.

Of the 9th-grade students responding:

29.36 percent indicated an interest in a business occupation (24.57 percent of the boys, 34.67 percent of the girls).

39.54 percent expressed interest in a clerical occupation (17.79 percent of the boys, 65.59 percent of the girls).

22.99 percent stated their interest was in a distributive occupation (27.40 percent of the boys, 18.12 percent of the girls).

18.69 percent expressed interest in a semi-skilled occupation (30.87 percent of the boys, 5.23 percent of the girls).

30.77 percent were interested in a skilled occupation (49.13 percent of the boys, 10.45 percent of the girls).

29.94 percent indicated an interest in a service occupation (15.75 percent of the boys, 45.64 percent of the girls).

28.78 percent said their interest was in a technical occupation (39.53 percent of the boys, 16.90 percent of the girls).

29.77 percent expressed interest in engineering (50.71 percent of the boys, 6.62 percent of the girls).

43.67 percent indicated an interest in a professional occupation (36.38 percent of the boys, 51.74 percent of the girls).

Of the 12th-grade students responding:

37.63 percent indicated an interest in a business occupation (36.71 percent of the boys, 38.76 percent of the girls).

38.15 percent expressed an interest in a clerical occupation (15.19 percent of the boys, 66.28 percent of the girls).

37.46 percent indicated an interest in a distributive occupation (38.92 percent of the boys, 35.66 percent of the girls).

19.16 percent expressed an interest in a semi-skilled occupation (29.75 percent of the boys, 6.20 percent of the girls).

28.22 percent said they were interested in a skilled occupation (46.20 percent of the boys, 6.20 percent of the girls).

27.18 percent showed interest in a service occupation (18.35 percent of the boys, 37.98 percent of the girls).
30.49 percent stated they had an interest in a technical occupation (33.23 percent of the boys, 27.13 percent of the girls).

25.09 percent expressed an interest in engineering (39.87 percent of the boys, 6.98 percent of the girls).
47.74 percent indicated an interest in a professional occupation (44.30 percent of the boys, 51.94 percent of the girls).

The interests expressed conform more closely to job opportunities than did the actual job selections. This would seem to indicate that if interests could be explored through adequate post-high school education, little directive counseling would be necessary to provide industry with its requirements. This has been proved true in states offering free, or nearly free, post-high school education.

Reasons for Career Selection

The students expressed, in their own terms, the most important reason for selecting the career for which they were preparing. Most of the reasons at both the 9th- and 12th-grade levels involved factors such as interest or ability. Following is a listing of the major reasons given:

55.19 percent of the 9th-grade students gave Interest as a reason for career selection (51.73 percent of the boys, 58.78 percent of the girls).

Ability was listed by 8.61 percent (9.09 percent of the boys, 8.11 percent of the girls).

Pay was given by 7.29 percent (6.93 percent of the boys, 7.66 percent of the girls).

Job Security was listed by 3.09 percent (4.55 percent of the boys, 1.58 percent of the girls).

The Desire to Work with People was listed by 3.42 percent (.43 percent of the boys, 6.53 percent of the girls).

Job Opportunities was given by 1.32 percent (2.16 percent of the boys, .45 percent of the girls).

Service to Others was given by 3.42 percent. (4.11 percent of the boys, 2.70 percent of the girls).

Parental Influence was indicated by only 3.42 percent (5.63 percent of the boys, 1.13 percent of the girls).

All other reasons came to 14.24 percent (15.37 percent of the boys, 13.06 percent of the girls).

Following is a listing of the major reasons given by the 12th-grade students:

Interest was listed by 54.47 percent (55.02 percent of the boys, 53.74 percent of the girls).

Ability was listed by 18.69 percent (23.88 percent of the boys, 11.68 percent of the girls).

Pay was given by 2.98 percent (5.19 percent of the boys, 0.00 percent of the girls).

Job Security was listed by 5.57 percent (5.88 percent of the boys, 5.14 percent of the girls).

The Desire to Work with People was listed by 5.96 percent (1.73 percent of the boys, 11.68 percent of the girls).

Job Opportunities was given by .20 percent (0.00 percent of the boys, .47 percent of the girls).

Service to Others was given by 6.36 percent (3.81 percent of the boys, 9.81 percent of the girls).

Parental Influence was indicated by only .80 percent (1.38 percent of the boys, 0.00 percent of the girls).

All other reasons totaled 4.97 percent (3.11 percent of the boys, 7.48 percent of the girls).

Curricular Options

Students indicated the curriculum in which they were enrolled and the option within that curriculum. Total percentages by curricular areas are discussed further in Section IV. The options within the curricula are listed below.

In the Academic Curriculum 60.39 percent were enrolled in the Standard Option, 28.18 percent in the Mathematics-Science Option, and 11.43 percent in the Language Option.

In the Business Curriculum 40.05 percent were enrolled in the Clerical Option and 59.95 percent in the Stenographic Option.

In the General Curriculum 56.81 percent were in the Liberal Elective Option, and 43.19 percent in the Practical or Fine Arts Option.

In the Vocational Curriculum 15.38 percent had not decided on a final elective. The specific electives indicated follow:

Cosmetology	3.62%
Office Machines	1.36%
Commercial Art	3.17%
Carpentry	2.26%
Sheet Metal	7.24%
Automobile	11.76%
Machine Shop	10.41%
Electric Wiring	8.60%
Electric Power	5.43%
Cabinet Making	12.67%
Radio and T.V.	4.07%
Bricklaying	2.26%
Plumbing	2.26%
Foundry	.45%
Welding	.90%
Printing	3.62%
Baking	1.36%
Shoe Repair	1.36%
Electrical Appliances	.91%
Drafting	.91%

The vocational electives and the need for expanded vocational options are discussed in Section VII of this report.

I.Q. — Student Sampling

Information pertaining to the range of intelligence quotients was obtained from each school for the students whose questionnaires were completely analyzed. It was evident from this sampling that a normal, statistically reliable group had been selected since the ranges, medians, and averages compare accurately with the totals as reported in Section IV of this report for the over-all school population.

The 9th-grade students in the comprehensive schools had a median I.Q. in the range 100-104. The average I.Q. was in the same range, namely, 103. The individual scores ranged from a low of 55-59 to 155-159.

Twelfth-grade students in the comprehensive schools had a median I.Q. in the 105-109 range; the average was 105; the range was from 55-59 to 150-154.

The 9th-grade students in the vocational schools had a median in the 105-109 range; the average was 105; the range was from 55-59 to 125-129.

The 12th-graders in the vocational schools had a median in the 95-99 range, an average of 97, and an I.Q. range from 70-74 to 120-124.

All schools, comprehensive and vocational, showed a composite in grade 9 with a median of 100-104, an average of 103, and a range from 55-59 to 155-159.

All schools, comprehensive and vocational, showed a composite in grade 12 with a median of 105-109, an average of 105-109, and a range from 55-59 to 150-154.

THE SURVEY OF PARENTS

Questionnaires were distributed to 50 percent of the parents of 9th- and 12th-grade students whose responses were completely analyzed and tabulated. The relationship between educational expectations and occupational choice given by the students and by the parents was considered important in determining the realism of the responses and the availability of students for training in specified curricular areas. Of the parents contacted, 56.8 percent returned completed questionnaires. No follow-up was attempted with those who did not reply. This questionnaire is reproduced on pages B-22 and B-23 of the Appendix.

Parent's Occupation

The parent's occupation bore a direct relationship to the expected occupation of the child in that 87.6 percent of the parents expected their children to qualify for an occupation at a higher level than that currently held by them. Only 1.6 percent expected their children to qualify for a lower level occupation. The remainder listed the same occupational level.

Father's Occupation

Of the responding fathers, 12.95 percent are currently employed in unskilled labor classifications, 15.91 percent in semi-skilled occupations, 17.50 percent in skilled occupations, 4.10 percent in technical occupations, 8.41 percent in professional or engineering occupations, 6.61 percent in managerial or administrative occupations, 4.77 percent in clerical occupations, 9.55 percent in sales occupations, and 11.10 percent in service occupations. No occupation was reported by 3.19 percent, and 5.91 percent of the fathers were deceased.

Although occupations were listed, there were 11.1 percent who were not currently employed in the listed occupation or who were unemployed.

Mother's Occupation

Most of the mothers did not list an occupation. Sixty-eight percent indicated they were housewives and not currently employed. The following percentages indicate specific occupations which were listed, although only 30.81 percent of those listing an occupation were currently employed. Of the total mothers 19.31 percent were currently employed. Occupational areas by percentages were 1.33 percent unskilled, 2.44 percent semi-skilled, 1.11 percent skilled, 1.11 percent technical, 4.89 percent professional, 8.00 percent clerical, 4.67 percent sales, 6.67 percent service. Deceased were 1.78 percent.

Education Completed by Parents

Formal education completed by the fathers and mothers is listed below:

2.06 percent of the fathers and 1.37 percent of the mothers had completed the 4th grade or less.

3.43 percent of the fathers and 1.83 percent of the mothers had completed the 5th or 6th grade.

13.96 percent of the fathers and 13.27 percent of the mothers had completed the 7th or 8th grade.

7.78 percent of the fathers and 8.01 percent of the mothers had completed the 9th grade.

13.96 percent of the fathers and 12.13 percent of the mothers had completed the 10th grade.

4.81 percent of the fathers and 4.58 percent of the mothers had completed the 11th grade.

30.21 percent of the fathers and 40.47 percent of the mothers had completed the 12th grade.

3.66 percent of the fathers and 4.81 percent of the mothers had completed 1 year of post-high school work.

6.41 percent of the fathers and 2.97 percent of the mothers had completed 2 years of post-high school work.

.92 percent of the fathers and 1.14 percent of the mothers had completed 3 years of post-high school work.

7.55 percent of the fathers and 8.70 percent of the mothers had completed 4 years of college.

5.26 percent of the fathers and .46 percent of the mothers had completed some post-college work.

Residence of Parents

The average period of residence in the Pittsburgh Metropolitan Area was 36.5 years; 27.62 percent had lived in the area all of their lives, 17.38 percent for more than 50 years, 25.71 percent for 40 to 50 years, 12.62 percent for 30 to 40 years, 8.33 percent for 20 to 30 years, 2.86 percent for 15 to 20 years, 2.38 percent for 10 to 15 years, 2.86 percent for 5 to 10 years, and .24 percent for less than 5 years.

Education Anticipated for Child

Nearly all of today's parents would like their children to go to college, and national polls indicate that from 80 to 97 percent of the parents interviewed stated their children probably would go to college. From 70 to 84 percent of the parents indicated positively that college plans were being made. The amount of education completed by the parents was a determining factor in their responses. Parents with college degrees indicated that from 87 to 94 percent of their children would attend college. Parents with high school education reported that from 69 to 82 percent of their children would attend college. Parents who had completed only grade school indicated that from 51 to 62 percent of their children would attend college.

These national expectations are unrealistic. They are nearly double the actual percentage of students who attend college. The post-high school attendance anticipated by the parents completing our questionnaires also doubled the expected average actual attendance. The following tabulation indicates the percentages by levels of education which parents expect the children to complete.

Education Parents Anticipate for Their Children

Levels of Education Anticipated	12th Grade Girls	12th Grade Boys	9th Grade Girls	9th Grade Boys	Composite Totals
Total with some post-high school work	68.66	70.45	67.98	59.33	65.74
One or more years college graduate work	0.00	11.36	7.82	9.99	8.10
Four years of college	50.75	52.27	47.66	46.67	48.84
Three years of post-high school work	11.94	0.00	2.34	0.00	2.55
Two years of post-high school work	5.97	6.82	7.03	2.67	5.32
One year of post-high school work	0.00	0.00	3.13	0.00	.93
Trade school education	2.98	19.32	14.06	24.46	16.90
High school only	28.36	10.23	17.96	16.00	17.36

None of the parents indicated that their children would complete less than a high school education.

Child's Career

In indicating the occupational field which had been selected by the children, the parents reported percentages and occupational areas as tabulated below.

Careers Parents Anticipate for Their Children

Occupational Area	12th Grade Girls	12th Grade Boys	9th Grade Girls	9th Grade Boys	Composite Totals
Unskilled	0.00	0.00	0.00	0.00	0.00
Semi-Skilled	2.86	0.00	0.00	1.31	.91
Skilled	0.00	20.23	3.94	18.30	11.59
Technical (including nursing)	11.43	16.85	7.09	9.80	10.68
Professional (including engineering)	38.57	47.19	44.09	46.41	44.54
Administrative and Managerial	2.86	3.37	3.94	1.96	2.95
Clerical	24.29	2.25	25.20	1.96	12.50
Distributive	4.28	1.12	1.57	3.92	2.73
Service	7.14	2.25	6.30	3.27	4.55
Occupation not selected	5.71	6.74	4.72	13.07	8.18

2

Only 1.36 percent of the parents indicated that their children were not planning to enter the labor force: 2.86 percent of the 12th-grade girls and 3.15 percent of the 9th-grade girls.

The above selections are high and very unrealistic in the professional area and are considerably below what should be anticipated in semi-skilled, distributive, and service fields.

Reasons for Occupational Selections

The parents reported that 4.37 percent of the children had selected the occupation for reasons of security, 39.71 percent because of interest in the selected field, 9.07 percent because a parent or relative was employd in such an occupation, 5.39 percent because of the pay expected in that occupation, 20.59 percent because of specific abilities, 6.62 percent because of aptitude, .98 percent because the child had been counseled into that occupational area, 6.37 percent because the child liked to work with people, 4.41 percent because the child liked to work with his hands, and 2.45 percent because it was the best level of employment the child could hope to achieve with the amount of education expected.

The parents reported that 67.22 percent of the children had made their own selection of an occupation, 20.74 percent had decided jointly with their parents, 10.03 percent of the selections had been made by parents, and on 2.01 percent of the responses no reason for selections was given.

Interests in Occupational Fields

Although specific occupational areas were selected, the parents also indicated other areas or levels of employment in which the children were interested. In some instances these alternate occupations would be used as interim jobs during preparation for the final selection. The percentages tabulated below total more than 100 percent since in some instances more than one area of interest was indicated.

Children's Occupational Interests as Reported by Parents

	12th Grade		9th Grade		Composite Totals
	Girls	Boys	Girls	Boys	
Business	35.71	25.84	39.06	27.99	31.82
Clerical	51.43	13.48	48.44	13.33	29.55
Distributive	18.57	20.24	15.63	21.33	18.86
Semi-skilled	0.00	15.73	3.13	16.00	9.55
Skilled	0.00	26.97	2.34	42.67	20.68
Service	17.14	4.49	21.88	9.33	13.18

Comprehensive Versus Specialized Education

Parents were asked to indicate their preference between a comprehensive and a specialized school for the final occupational training of their children. Thirty-four percent felt that all of the education should be given in a comprehensive or academic system; 66 percent indicated that there should be a combination of academic and vocational and that at least a part of the training should be given in specialized programs or schools.

Comments and Recommendations

Space was allowed on the questionnaire for comments and recommendations relating to the levels of education. More than 60 percent of the parents made some recommendation, comment, or explanation. Described below are the items most often mentioned.

Of all parents responding, 21.67 percent indicated that their children would be sent to college if it were not for the lack of money. This, when added to the 65.74 percent who expect their childen to complete some post-high school education, would mean that 87.41 percent of the parents believe their children would complete some post-high school education, if adequate finances were available or if there were free public post-high school education.

The need for 2-year junior or community colleges to provide technical and vocational education was indicated by 14.77 percent of the parents.

Parents of 53.40 percent of the girls indicated that certain occupations such as the skilled trades, technical occupations, and engineering were not suitable employment for girls.

Other items indicated by a large percentage of the parents were:

1. Students were not taking certain curricula because of dislike for or inability to do mathematics or scientific problems as they are currently taught.
2. Cheaper education must be provided if adequate work preparation is to be obtained in the schools.
3. The lack of ability of the children was indicated as related to certain occupational areas by 7.27 percent of the parents.
4. More training must be given in the schools for children not going to college.
5. Parents indicated that training which is available must be revised to meet today's occupational needs.
6. Educational offerings were discussed in relation to the availability of curricula, and more adult schools were suggested as well as more cooperative programs, more emphasis on specialized education for those not going to college, and the need for addi-

tional school facilities and for more adequately trained counselors and teachers in vocational areas.

7. Work opportunities were mentioned on a great many of the questionnaires. The parents indicated that many unions are excluding young people from membership.

THE SURVEY OF ADULT SCHOOL STUDENTS

A survey was made by questionnaire covering approximately 70 percent of all students attending vocational adult school classes. The questionnaire is reproduced on pages B-24 and B-25 of the Appendix. Following is a summary of the information obtained.

Age of Students

Of the students enrolled in vocational adult school programs, 8.68 percent were under 20 years of age; 39.44 percent were from 20 to 29 years of age; 27.92 were from 30 to 39 years of age; 18.30 percent were from 40 to 49 years of age; 4.34 percent were from 50 to 59 years of age; and 1.32 percent were 60 years of age or older.

Education Completed

Formal education completed prior to adult school enrollment for the entire group surveyed follows:

.40 percent of the students had completed 5 years or less of formal education.

5.61 percent had completed 6 to 8 years.

8.81 percent had completed 9 years.

9.62 percent had completed 10 years.

5.41 percent had completed 11 years.

58.92 percent had completed 12 years. (This does not necessarily indicate high school graduation.)

6.01 percent had completed 1 year of post-high school work.

3.01 percent had completed 2 years of post-high school work.

.80 percent had completed 3 years of post-high school work.

2.00 percent had completed college or more.

4.41 percent did not indicate the amount of education completed.

Level of Current Employment

Of those surveyed, 84.71 percent were currently employed. The percentages by levels and types of employment follow:

7.29 percent of those employed were working in unskilled occupations.

38.02 percent were in semi-skilled occupations.

32.81 percent were in skilled occupations.

6.51 percent were in clerical occupations.

4.69 percent were in technical occupations.

1.30 percent were in professional occupations.

4.69 percent were in sales occupations.

4.43 percent were in service occupations.

.26 percent were in managerial occupations.

Length of Time in Job Classification

The employed adult school students were in their present job classifications, on a percentage basis, for the periods of time indicated below:

14.48 percent of the employed students were in their present job classification for less than 1 year.

11.04 percent were in the classification for 1 but less than 2 years.

8.62 percent were in the classification for 2 but less than 3 years.

5.52 percent were in the classification for 3 but less than 4 years.

23.10 percent were in the classification for from 4 to 8 years.

9.31 percent were in the classification for from 8 to 12 years.

13.44 percent were in the classification for from 12 to 15 years.

8.62 percent were in the classification for from 15 to 20 years.

3.79 percent were in the classification for from 20 to 25 years.

2.07 percent were in the classification for 25 years or more.

Time with Present Company

The vocational adult school students who were employed were with their present employer for the time indicated below:

12.13 percent of the employed workers were with their present company for less than 1 year.

13.12 percent were with the company for 1 year but less than 2.

9.84 percent were with the company for 2 years but less than 3.

3.39 percent were with the company for 3 years but less than 4.

18.36 percent were with the company for from 4 to 8 years.

12.46 percent were with the company for from 8 to 12 years.

13.11 percent were with the company for from 12 to 15 years.

7.21 percent were with the company for from 15 to 20 years.

7.54 percent were with the company for from 20 to 25 years.

2.30 percent were with the company for more than 25 years.

Jobs for Which Students Are Preparing

All of the students in vocational adult school classes are either currently employed or are training for employment. The levels of employment for which they are preparing are indicated below:

2.85 percent of the total surveyed enrollment are preparing for semi-skilled employment.

65.24 percent are preparing for skilled occupations.

4.28 percent are preparing for clerical occupations.

22.79 percent are preparing for technical occupations.

1.99 percent are preparing for professional occupations.

.57 percent are preparing for sales occupations.

1.99 percent are preparing for service occupations.

.29 percent are preparing for managerial occupations.

Of those currently employed, 67.42 percent are preparing for higher level positions, and 32.58 percent are taking training directly related to their present occupation.

Education Required

The total amount of education required for the levels of employment desired by the students is tabulated below:

1.79 percent of the students indicated that high school graduation would be the minimum requirement for the position for which they were training.

17.86 percent indicated 1 year of trade school education would be necessary.

29.46 percent stated that 2 years of trade school education would be necessary.

5.36 percent required 3 years of trade school education.

35.71 percent required 4 years of trade school education.

4.46 percent indicated that 2 years of college would be required.

5.36 percent indicated that 4 years of college would be necessary.

Training by Employers

Very few of the students were aware of their employer's policy regarding education or training and did not know whether the company conducted any such programs. Of the total number responding, 21.16 percent believed their employer conducted some type of in-plant training. However, only 4.73 percent had taken any in-plant or company-sponsored course. A total of 18.80 percent believed their employer maintained records of their post-employment education and training.

In analyzing these responses, it was found that only 8.64 percent of the students actually worked for companies which conduct in-plant training. This is exclusive of those students enrolled in apprenticeship programs.

Reasons for Taking Course or Curriculum

Most of the students were taking courses for advancement on their own initiative. It will be noted from the following tabulation that the same 4.73 percent who had taken in-plant training had been referred by their companies for additional work:

4.73 percent of the students indicated they were taking the current course at the request of their employer or following counseling by a representative of the company.

.31 percent were taking the course at the request of their union or a union representative.

59.31 percent indicated they were taking the course for advancement purposes on their own initiative.

19.40 percent indicated they were taking the course for general education purposes.

16.25 percent indicated they were taking the course for hobby or interest purposes.

Secondary reasons were indicated by some of the students. These could not be statistically related to the primary reasons given above and, therefore, are not being reported.

Degrees, Diplomas, and Availability of Education

Most of the students desired to continue taking courses until they were able to receive a diploma or degree. The lack of availability of the necessary curricula was commented on by over 50 percent of those completing the questionnaires. The following tabulation summarizes the major responses:

21.43 percent of the students were interested in obtaining a high school diploma.

45.86 percent indicated they would be interested in completing a 2-year college curriculum if such a program were available.

34.02 percent were interested in completing a 4-year college program if they could do so through extended day coverage, or if the education were made available on a cost-free basis or at a cost low enough for them to afford it.

15.12 percent would continue their education through the engineering level and 4.47 percent would continue in other professions if extended day programs or day school programs, which could be coordinated with their work, were made available.

63.95 percent were interested in continuing to take courses which would lead to a technical or semi-professional skill, if such courses were available.

66.22 percent believed that courses leading to technical skills should be made available at the post-high school level of education.

50.19 percent believed that college credit should be allowed for such technical courses.

The above percentages relating to educational expectations compare very closely to the actual completion ratios found in areas of the United States where the levels of education indicated are available in adult school or extended day programs at the post-high school level.

The students completing these questionnaires would probably conform to the national averages if they knew what courses to take and if such courses were available. However, lack of both educational and industrial counseling was evident since the students were not generally aware of the education or training necessary to meet specific job requirements. Except in the apprenticeship areas, which are discussed in another section of this report, there appeared to be little counseling, either by the school or the employer, in connection with the education which should be completed or the actual courses which should be taken.

The students were also not aware of programs available within their own companies where such training existed. Students working for companies known to have organized training programs reported as follows:

> 63.97 percent indicated that their company conducted no training or that they were unaware of such training. The remainder reported knowledge of in-plant training; however, less than 10 percent of this group with knowledge of training had taken courses under any company-sponsored program.

It is evident, as has been discussed in Section III of this report, that industry must more adequately indoctrinate its employees and build within them an understanding of the functions of the company, of job opportunities, and of services, both company and public, which are available to the employees.

Industrial advisory committees must function in cooperation with the schools in every major vocational area. Such committees should be functioning in each of the vocational curricular areas covered by this study of vocational adult school students.

The need for a revised advisory committee structure and the serious lack of adult school facilities and programs are discussed in Sections V and VII of this report.

THE LABOR UNION SURVEY

In order to assist in determining the number of students interested in further occupational, vocational, or technical training, the major labor unions in the Pittsburgh area were contacted. In addition to educational information, the unions were asked for data on membership, job classifications, apprentice and other training programs, and for their recommendations on education, recruiting, promotions, etc.

A questionnaire covering these factors was distributed to 411 labor union locals in the Pittsburgh area. All types of unions were contacted including craft, trade, industrial, brotherhood, and other independent groups. The complete listing was obtained from the Pittsburgh office of the Bureau of Labor-Management Reports of the Department of Labor. The questionnaire used is reproduced on pages B-17 to B-19 of the Appendix.

The headquarters of each union contacted was in Pittsburgh, although the geographical area covered by the locals included most of Allegheny County. Less than 18 percent of the locals responded directly to the questionnaire although, through central headquarters of many of the unions, composite responses were obtained resulting in a total coverage of 64.71 percent of the locals originally circularized.

Responses were tabulated from unions, either central or local, representing approximately 115,000 workers as of July, 1962. These same unions indicated decreased membership of 18.64 percent from 1950 to 1962.

Of the total union membership reported, approximately 69 percent are employed full time, 14 percent are employed part time, and 17 percent are currently unemployed.

The reorganization or combination of locals had resulted in approximately a 3 percent increase in net membership over the membership which would have been reported had there been no such reorganizations or combinations.

Although relatively few new members had been accepted by the unions during the year preceding the survey, 89 percent of those accepted into membership were transfers from other locals, and 11 percent were accepted following either the completion of apprenticeship training programs or the obtaining of industrial employment. Total acceptance of new members in those unions requiring membership prior to employment was only .49 percent of the total membership of those unions. This relative inability of young workers to join such unions is discussed later in this section.

Currently only 3.21 percent of the locals have an organized training program for their membership. More are contemplating such programs. This does not include school and industrially centered training programs but only those courses conducted by the unions. There is little coordination between such programs and either school curricula or industrial training. It is suggested that all three groups would develop better programs with more inter-relationship and coordination.

Less than 6 percent of the current union membership has participated in any school curriculum within the past 5 years. Usually such participation has been as an apprentice or for specialty work in journeyman retraining.

On the question of whether industry should accept qualified graduates from vocational schools or classes without actual work experience, 16.41 percent of the unions indicated that they should; 54.72 percent stated that work experience should be required; and 28.87 percent made no recommendations. There was a direct relationship between the type of union and the response to this question.

Of all the unions reporting, 37.94 percent indicated that industry should participate in an apprenticeship or other form of school centered work-experience program. Currently, however, only 13.03 percent of the membership has participated in such pre-employment programs. Projecting apprenticeship programs for the future, 56.91 percent indicated that they would participate in apprenticeship or other work-experience programs if industry were hiring from this source.

Of the unions which would participate in an apprenticeship program, 74.86 percent would not allow credit for school training by cutting down the length of apprenticeship required.

Concerning the upgrading of present employees, 87.42 percent of the unions indicated that future industrial personnel should be recruited by upgrading. All unions responding positively to this question were operating in industrial situations involving either a closed shop or the requirement of membership following industrial employment.

In connection with additional courses the union members might desire to take for upgrading purposes, 29.54 percent indicated their members would take such courses; however, only 2.34 percent are currently enrolled in either a union-sponsored training program, a school program, or an industrial training program.

In connection with suggested modifications, improvements, or additions to the current school programs, nearly all the unions indicated there should be more emphasis on skilled training, that more modern equipment is required in the schools, and that there should be more advisory committee control of curricula and placement. The relationship of academic and vocational courses suggested by the unions averages 82.74 percent of the curriculum in skilled training and 17.26 percent in related academic areas.

Our analysis of the questionnaires returned by the labor unions and of discussions with several union officials makes it evident that organized labor is facing many problems in the Pittsburgh area. Most of these problems relate directly to the present employment-unemployment ratios and apply more to the craft and trade unions than to other types. Some of these problems are:

1. The increasing average age of the union membership. In the final analysis, labor is injuring itself and the potential economy by holding down the number of workers in a craft or trade so there will not be additional competition for the jobs. It is very difficult, and in some trades almost impossible, for a young worker to find apprentice or other union openings. Too often the few that are available go to relatives of members of a union, or to men already working in a shop. The young men will eventually change this condition by whatever means they need to use. Unions must work with youth and balance their membership. Competing groups would be very detrimental to the economy.
2. The almost complete lack of minority ethnic group membership in unions except in the unskilled and in a few semi-skilled classifications. Here, too, these groups will change the situation in one way or another. Society and the economy as a whole will be hurt if this change is not made cooperatively.
3. The bargaining for increased benefits for a decreasing number of workers in several industries. The wage and benefit differentials resulting will cause unorganized groups to organize and will result in competition and friction between labor groups.

These and other problems relating to unemployment of union workers must be resolved by the unions but they cannot be resolved by an aging membership. Solutions can be obtained only by unions which represent a cross section of the employable work force. Such a cross section must be by age and also by race, religion, and color.

OTHER COMMUNITY FACTORS

Population and Housing

The population of the City of Pittsburgh has changed as follows during the 10 years from 1950 to 1960:

City Population	1960	1950	% of Change
White	502,593	593,825	—15.4
Negro	100,692	82,453	+22.1
Other races	1,047	528	+98.3
Total	604,332	676,806	—10.7

Using a slightly different classification system, the Bureau of Census reports that in 1960 the non-white population in Pittsburgh was 101,681, or 16.83 percent of the total population.

The total foreign-born population in 1960 was 121,695 or 20.14 percent of the total Pittsburgh population. The major foreign-born groups are listed below:

Italian	27,188	Polish	11,125
English	16,634	Serbo-Croation	6,026
German	12,750	Hungarian	4,928
Slovak	11,854	Yiddish	4,436
Ukranian	3,462	Spanish	905
Russian	2,998	Arabic	844
Greek	2,907	Rumanian	516
Lithuanian	1,948	Chinese	362
French	1,311	Dutch	357
Slovenian	1,082	Norwegian	244
Czech	1,003	Japanese	95
Swedish	916	Portuguese	88

The total number of households in Pittsburgh has decreased by 1.3 percent. In 1950 there were 190,745, and in 1960 there were 188,336.

The over-all population per household decreased 8.5 percent or from 3.40 persons in 1950 to 3.11 persons in 1960.

Owner-occupied housing units have increased from 1950 to 1960 by 13.4 percent. Renter-occupied housing units have decreased by 12.2 percent.

The median number of persons per housing unit has decreased by 12.9 percent or from 3.1 persons in 1950 to 2.7 persons in 1960.

The population ratio factors listed above make education, training, and retraining more difficult for the schools than would be the case if so many cultural backgrounds and races did not constitute such a large percentage of the population.

Employment opportunities, union membership, and other job related factors also become more serious problems and more difficult to resolve.

The only answer the schools can offer to both these problems is more education at a more advanced level. Groups of the population which are excluded from certain types of jobs must train for jobs in other areas of employment. These groups must motivate themselves to higher levels of attainment. Jobs are available in distribution, services, and in technical and semi-professional areas. If there is little opportunity in semi-skilled and skilled trades, then these jobs might be left for the older workers in majority groupings who are now unemployed. The young members of minority groups must train themselves for the jobs of today and tomorrow and let the conservative majority catch up with them later.

A Survey of the Unemployed

In Section II of this report are listed statistics relating to employment-unemployment ratios and percentages of unemployed by skill level. Efforts to retrain the unemployed are discussed in Sections V and VIII. The following information was obtained from a study of the unemployed registered in the Pittsburgh office of the Bureau of Employment Security. This study relates directly to the availability of students for vocational training and/or retraining programs.

Random samplings were made of the registration card (form 511) filed by every unemployed person. Samplings were also taken from the retraining application (form 920) filed by those of the unemployed who are interested in retraining. The retraining application may be filed by every unemployed person following a counseling interview with a representative of the Bureau of Employment Security. Age, education completed, desire for training, and level of prior employment were tabulated from each of the files surveyed. The levels of employment in the following tabulation are not all in conformity with the definitions used in this report. For example, the semi-professional group includes mostly hospital and/or related medical personnel such as aides, practical nurses, laboratory workers, etc., who have not actually had the training required for such work under present standards. The level of employment is as reported by the unemployed worker and does not necessarily follow B.E.S. groupings.

It will be noted that the younger unemployed who have completed considerably more formal education are those who desire retraining. The older workers who are less well-educated are not interested in retraining. They are waiting for former jobs to become available again and, in all probability, will remain unemployed for many years or perhaps indefinitely.

Retraining Requested by the Unemployed

Level of Employment	Percent Desiring Retraining	Those Desiring Retraining		Those Not Desiring Retraining	
		Average Education Completed	Average Age	Average Education Completed	Average Age
Unskilled	11.21	9.2	24.5	4.6	51.6
Semi-Skilled	10.43	10.3	26.7	6.2	50.8
Skilled	9.06	10.6	28.6	7.8	47.4
Service	1.33	9.8	23.4	7.3	44.9
Clerical	19.04	11.5	30.2	9.6	46.3
Sales	8.69	11.2	32.4	9.3	41.5
Semi-Professional	6.21	12.4	25.8	10.3	51.7
Total Unemployed	9.28	10.2	25.3	6.3	49.4

The very small percent, only 9.28, of the total unemployed who are interested in retraining should be a signal to government, industry, and the schools that adequate training must be made available before a student leaves school. It further indicates that the entire society must do more to motivate students and workers to prepare for jobs of the future and not for jobs which were available only in the past. These problems are discussed further in Sections V and VIII of this report.

RECOMMENDATIONS

Students, parents, and the community lack realistic knowledge of job opportunities, training required, the cost of such training, and the amount of education individuals will be able to complete. Throughout this section the opinions of various groups have been reported. All individuals and groups interested in educational facilities and needs must become better informed. Only by having and using accurate and current knowledge can the students, parents, and community work with the schools to build the programs required in our emerging technological age. Specific recommendations relating to these factors follow:

1. Schools and employers must inform parents concerning job opportunities, educational requirements, and student interests and capabilities. Parents must have a more realistic understanding of the education their children should complete and the jobs they probably will be able to obtain.
2. Schools, employers, community agencies, and parents must inform all students of their capabilities and job opportunities. Everything possible must be done to assist each student to prepare to the extent of his ability, interest, and motivation for the jobs of the future. The student must be more realistic about his educational needs and potentials.
3. The cost of education must be lowered or eliminated in order that students can realize their potentials and thereby help build the economy and maintain it at a stable level.
4. Students' over-all occupational interests are more realistic than their specific job selections. Students must be guided by schools and parents toward areas of interest rather than allowed to select jobs on the basis of hopes or prestige.

5. High schools, post-high schools, and extended day schools must provide the occupational, vocational, and technical curricula required to prepare the workers of tomorrow for the jobs which will be available then.
6. Student initiative at all levels of education must be built upon by the schools by making expanded curricula available. Specific recommendations covering this item and item 5 are contained in Section VII of this report.
7. Labor organizations must work more closely with the schools to help prepare workers for employment.
8. Labor organizations must modernize their membership policies, not only to protect their own existence, but to broaden the employment base for all ages, races, and groups and thereby bolster the general economy. Employment opportunities for all are based on such an economy.
9. Minority groups must prepare for the jobs which are available. They must motivate their members more and help them to achieve their educational goals.
10. The unemployed must be motivated to retrain. The schools must start this motivation in all students prior to their first employment. Education must never be a terminal process. Workers should be retraining while they are still employed so there will not be the need in the future to continue the present work, layoff, training, retraining, and hoped-for reemployment process. Workers of the future should always be ready for the next higher level of employment through adequate school and industrial training programs.

SECTION VII

PROPOSED VOCATIONAL EDUCATION

Children who are now in elementary school will enter the labor force between 1970 and 1980, depending on the amount of pre-employment education they complete. By 1975, the population of the United States will probably have increased by more than 50 million persons. To continue our improving living standards and to provide for the population increase, we should by 1975 be producing 70 percent more in goods and services than we are today. However, our labor force will have increased only about 28 percent, assuming there will be as many people wanting to work in proportion to the population as we have now.

For demographic reasons the labor force will grow at a faster rate than population until 1970. Young workers under 25 and workers 45 and over will account for almost 90 percent of the total increase in the number of workers. Young workers under 25 will make up almost half of the growth in the labor force by 1970.

The children of the 1960s will be the backbone of the labor force at the beginning of the 21st Century. They must be given a 21st Century education rather than the 19th Century education most of them are now receiving. To accomplish this, we must build on the knowledge of job opportunities we have now and project this knowledge into educational programs which will meet the needs of the immediate future. We must accept the challenges of change and live in our children's future rather than in our parents' past. What was a good education for our parents will not begin to meet the needs of our children.

CHANGES IN TIME AND METHODS

The United States Department of Labor estimates that 200,000 jobs a year will be eliminated due to automation from 1962 through 1970. However, if the job increase ratios reported for the past decade continue, some 500,000 new jobs will be created each year.

The main objections to increased automation come from labor groups representing unskilled, semi-skilled, and low level skilled workers. Statistically, however, there are expected to be more job vacancies nationally in the highly skilled occupations and in the technical and professional areas than there are anticipated overages in the lower level jobs due to future automation. The problem then is not a need to reverse progress and control automation but to motivate the unskilled to prepare for skilled occupations. Adequate educational facilities are imperative if this is to be done.

Automation and other methods changes will occur slowly enough for workers to prepare for the new jobs, if they desire to do so. At least for the next decade only large companies will be able to afford and/or profit from a great deal of increased automation. For example, to replace a manually operated lathe with a tape controlled machine would cost approximately $50,000. Very few small companies are able to afford such capital investment costs, and small companies employ 64.6 percent of the total national labor force.

A great many additional workers will be needed in all levels of employment due to the continuously decreasing average work week. If the 64-hour week which prevailed in 1900 still existed, only 40 million workers would be needed to produce the 1962 national product, and some 27 million would be unemployed as compared to the current 6 million. It is impossible to project the extent to which the average work week will be decreased; however, some economists believe it will be as low as 30 hours by 1980. In any event it will decrease, and *comprehensive* education will have to concentrate more on both increased preparation for more highly skilled employment and on the more adequate use of leisure time. This can be done only by broadening and modernizing our curricula.

CURRICULAR MODIFICATIONS

A good curriculum, whether academic or vocational, must be based on sound educational principles and geared to what the employer, the student, and society need. There must be a continuing evaluation of such programs to determine their effectiveness and to modify them as required. Evaluations must begin now and should start with a review of the courses the schools have been offering for many years.

Science, communications, and mathematics courses have been the main subjects covered in common in all curricula. This will continue to be true but the same science and the same mathematics cannot be given in each curriculum. Occupations vary so widely between the semi-skilled worker on one end of the continuum and the professional engineer or scientist on the other. Several levels of workers are needed within each employment area, and it is necessary that course content and curricular offerings vary to cover the needs of all. The same course in mathematics should not be taught in every curriculum, nor should the same course in physics, English, or electronics.

The technician needs many of the skills and knowledges of the skilled worker, the engineer, and the supervisor, but each job requires a modification of the general curriculum. Curricular adaptations have not kept pace with the changing needs. Most schools and instructors still give the same courses in mathematics and science, rather than modified and combined courses to meet the needs. Mathematics, especially, must become not only a study in logic and a mental exercise, but a functioning skill and a usable tool in the occupational training of all workers. Over 80 percent of the instructors of technical or vocational subjects and over 75 percent of all industrial supervisors favor teaching mathematics and science in special modified courses for various occupational levels.

On the other hand, it is just as illogical for a school to allow shop training to dominate any curricula. There must be a realistic balance between theoretical and practical applications. Each curriculum must be [illegible] and adapted individually. Each must meet a special need.

Curricula in the Pittsburgh Schools

The various academic curricular options in the Pittsburgh Public Schools have been very well developed and meet the needs of the students who will go to college. On the other hand, the vocational curricula, including business education, are not geared to the needs of employees. There has been no general vocational curricular development for nearly twenty years. Individual teachers have developed some good course outlines but even these have not been coordinated with those used by other teachers covering the same vocational subjects. The same problem exists in advanced technical and/or engineering or professional curricula at many local colleges and universities. Curricular standards must be cooperatively established and more uniform courses and course names developed.

It is easily understandable why potential employers are unable to determine what actually is being learned in the various schools. Very few industrial organizations can take the time required to make specific comparisons. Therefore, we recommend that schools at all levels and of all types coordinate their titles, descriptions, and course content more completely in order that degrees, diplomas, or certificates which are issued will be more meaningful to the employer.

All curricula should recognize and identify the elements which have a bearing on employability and effective performance in a job situation. The practice of classifying courses as "college preparatory" has tended to conceal or obscure the very practical nature of communications, mathematics, and other traditional academic skills. This problem deserves a separate treatment and more extended study since curriculum rigidities must be eliminated. In academic areas, rigidities are supported by tradition, accrediting agencies, and by college entrance requirements. In vocational areas, rigidity is fostered by federal and state participation requirements. All educators must recognize the continuities between science and vocational education, between language arts and business education, and the commonality of purpose found in all major aspects of the school program.

Every curriculum must develop functional literacy. Literacy is a relative term. Every job requires the worker to have the level of literacy which makes it possible for him to perform the operations of the job and to communicate with co-workers, supervisors, etc. We have been highly sensitized to the fact that industry is neither able nor willing to accept functionally illiterate workers and train them in the general academic procedures required for literacy. Therefore, fewer and fewer job openings are available where literacy is low. The functionally illiterate cannot be taught the skills of a number of jobs, nor can they long perform adequately in a technological society where job skills within major classifications are constantly changing. Every occupational, vocational, technological, or academic program must provide sufficient training in reading, writing, speaking, and in the special industrial forms of communication such as report writing and blueprint reading.

All vocational curricula should prepare the graduate:

1. To be employable and productive in one or several entry level jobs.
2. To be able to progress to positions of increasing responsibility.
3. To be able to increase his skills by means of advanced study and training. No education should be terminal. Learning never ceases and the motivation to continue study must be developed in everyone.

In order to accomplish the above curricular requirements, we recommend that the Pittsburgh city schools implement core curricula to cover the needs of students who will enroll in the several programs of job training which must be offered.

CORE CURRICULA

During recent years all levels of education from the secondary schools through the universities have been considering the needs for occupational, vocational, business, and technical curricula. Varying criteria have been used by the schools in establishing such programs. In most instances these have not been coordinated with other institutions, or with employer groups. Most programs have included some consideration of the extent to which the occupational field offers employment opportunities; the stability of the occupation, the expense involved for facility, equipment, and instruction; the ability to obtain efficient instruction and to establish programs which would attract sufficient students.

Most vocational programs, however, have not been structured specifically to meet present and future vocational needs. Courses have been established and sequences have been modified. However, course content has very seldom been considered on the modified basis necessary to update the material and make it currently utilizable by the student entering employment.

Our analysis of industrial employment requirements, both during this survey and in other parts of the nation, indicates that more than 50 percent of all subject matter necessary to qualify for entry level employment is common throughout all the jobs within a family grouping. For example, all technical jobs require similar knowledge to at least the extent of 50 percent of the over-all curriculum. In a like manner, all semi-skilled jobs have at least 50 percent of the knowledge required in common. This applies to all job families.

The core concept is not new. Most schools have had an academic core for years and many have had a business core. However, in other curricular areas, core programs have not generally been used. Too often the academic core is required for all even though tracks may be established and the core "watered down" for those in lower tracks. We do not suggest such a diluted academic core. Each curriculum should have its own core based on the knowledges required by industries in that specific employment area.

Specialized Schools and the Core Programs

It is necessary that at least 60 percent of the current and future high school population be given some occupational, vocational, technical, or professional training, other than through four-year colleges, which will be saleable to industry.

Currently vocational schools are enrolling approximately 3 percent of the total high school population in the public school systems of Western Pennsylvania. It is impractical to require an eighth-grade child to decide on the occupation which he will pursue for the remainder of his life. With vocational school enrollment being established at the 9th-grade level, 90 percent of the students who should be given such training are not receiving it, since they desire to continue in a comprehensive school with their friends and to remain in the district in which they live.

We propose that all students in the 9th and 10th grades be enrolled in comprehensive schools in core programs. During this time they would take standard subjects geared to their interests and abilities and basic core courses. In addition, they would be given exploratory occupational courses and an increased amount of vocational guidance. Those who perform poorly in such occupational curricula would continue within the comprehensive school and be given special training in the Occupational Core. Those who perform well would be advanced on an individual basis in a specialized school of advanced studies. This would include all vocational areas and technical areas and would also include advanced placement programs of an academic nature. For example, a student who proposes to be an academic major in mathematics and who is exceeding the standards of proficiency would be sent, for a period of advanced study, to the special school where he would take special advanced physics, computer automation, computer programming, etc. In like manner, the student who shows an average or better-than-average aptitude in metal shop would be sent to the advanced school for specialized training in some skilled area in which he shows particular interest. All of the students in all core programs would receive advanced work at such a center.

This would eliminate the prevailing attitude that an occupationally centered school or a vocational school is filled with low level students, and would build the prestige of core curricula.

The curricular offerings at such a specialized school would not be on a formal hourly Carnegie unit or year basis. The individual would remain in a school only until he learned the special skill, technique, or subject. One individual might complete the work in computer programming in six weeks; another might take two years. In a like manner, a student might remain in an electronics laboratory for one semester or three years. Upon completing this work, if the student had not reached graduation age, he would be returned to the comprehensive school for regular graduation. Whether remaining in the special school or returning to the comprehensive, he would be given a certificate of proficiency within the specialty area for which he had prepared.

Industrial Determination of Core Needs

The industries of Allegheny County have indicated that in the future they will require the following educational backgrounds of newly hired employees:

1. Only 6 percent will be hired with less than a high school education.
2. 14 percent will be hired with only a high school education.
3. An additional 23 percent will be hired following high school graduation if they have completed specialized training such as clerical, business, distributive, occupational, vocational, or technical.
4. 33 percent will be hired following one to three years of post-high school education and training in a specialized occupational, vocational, or technical field.
5. 24 percent will be hired following a minimum of four years of college work.

The industries also submitted job analyses and specifications which are summarized on page 22 of this report. The 109 classifications on which adequately developed school programs are required are listed in the following sub-sections by the core curriculum in which each job area should be covered. Each core curriculum is explained and the percent of students who should be enrolled in each is listed, as well as the percent who will require high school graduation and the percent requiring post-high school work to obtain adequate placement.

The Academic Core Curriculum

The present Academic Core should be continued, and current plans for strengthening the curriculum should be followed. As many students as can reasonably be expected to continue their educations *through* college should be counseled and encouraged to take one of the options available. Some of the academic students should have courses from other core curricula added to their programs. For example, a pre-engineering student should take a combined course in blueprint reading, schematics, and drafting; a pre-business administration student should take some core work in business communications and report writing; etc. As many combined core courses as possible, including shop and other exploratory programs, should be taken as electives by academic students.

Industrial and professional requirements of the future will require that a minimum of 24 percent of all high school graduates complete four years of college or more. Therefore, at least 40 percent of them should be enrolled in academic and/or college preparatory curricula. Those who do not complete college should transfer to a semi-professional or technical post-high school program.

The Business Core Curriculum

The present Business Curriculum should be considered a part of vocational education. A Business Core Curriculum should be developed which would include students preparing for the present business options, those preparing for general administration positions (non-college), and all distributive education students.

Both distributive education and business education have increased in scope during recent years. Graduates from such programs have the easiest time finding employment in the current labor market in Pittsburgh. Industry projects that 32 percent of the workers by 1967 will be employed in these areas (12 percent from college graduates and 20 percent from those with high school graduation and/or some post-high school work). Therefore, at least 20 percent of the high school population should be enrolled in the Business Core. Currently there are too many enrolled in business (3,174 in grades 10 through 12) and too few enrolled in distribution (63 in day cooperative programs and 144 in evening school programs). The number in regular business options should be decreased by about one-third, and the number in day distributive programs increased by some seven times.

The number of girls in these programs approximates 90 percent of the total. The ratio between girls and boys should be about two to one. This will be possible by proper expansion of the distributive and related programs.

The Business Core should approximate the Academic during the elementary school years and the first two years of junior high school. An occupations course should be given in the 9th grade as a part of the core programs. Exploratory courses during the junior high years should concentrate on business-type shops rather than on industrial arts or homemaking, although some of both should be offered.

Special arithmetic and mathematics courses should be offered during the 10th, 11th, and 12th grades which would concentrate on business arithmetic but include enough mathematics to develop an understanding of general concepts, but not traditional courses designed for proficiency in formal mathematical areas.

During the 10th and 11th grades, courses should be offered in business economics and business statistical methods. These should not be in depth except for those students specializing in jobs requiring more knowledge of these subjects.

Whenever possible all programs should include work experience during the 11th and 12th grades (or the last two years if post-high school work is contemplated). During these last two years the students would specialize in one of the job areas listed below.

In the general business field, industry has indicated the following jobs as those in which training is most needed:

1. Stenographers, including stenographer-typists and stenographer-clerks.
2. General typists and copy clerks.
3. General clerks including file clerks.
4. Receiving, shipping, and related clerks.
5. Bookkeepers, including accounting clerks.
6. Office machine operators with emphasis on comptometer, bookkeeping, and billing machine operators.
7. Keypunch and tabulating machine operators.
8. Calculator and computer operators.
9. Cashiers, including tellers.
10. Receptionists.
11. Telephone operators.
12. Specialized secretaries such as ward, medical, legal, etc.
13. Duplicator operators.
14. Inventory clerks, including rate and reservation.

Of these 14 job areas listed by industry as offering the greatest possibilities of employment, 8 are currently offered in the Pittsburgh schools. The other 6 should be established.

Seven of the 14 job areas would require some post-high school work for complete entrance-level proficiency.

In the distributive areas, industry has stressed the following jobs:

1. Sales, including salesmen, sales clerks, etc.
2. Shoppers and buyers.
3. Merchandise analysts and buyers.
4. Sales and service representatives.
5. Stock clerks and related positions.
6. Service station attendants.
7. Advertising and illustrating including layout.
8. Sales engineers.

Of these 8 job areas, 4 are currently offered. Five of the 8 require some post-high school work and 3 require some work in other core curricula. Cooperative work should be stressed and as many small companies as possible should be involved since over 70 percent of all sales personnel work for small organizations.

The Business Core programs all must involve courses which stress neatness and accuracy. In addition, courses in personality development, fundamentals of supervision, speech and voice training, telephone personality, office manners, sensitivity and non-direction should be included. Special emphasis must be given to English usage, grammar, report and letter writing. Traditional academic courses should not be used in these areas. Special, modified programs are required.

In all course areas not covered above, the regular academic courses would be given. All students in this core should graduate from high school and 31 percent of them should complete some post-high school work.

The Occupational Core Curriculum

The Occupational Core would consist of most of the job areas classified as semi-skilled and service. In addition, some of the skilled jobs which require less training are included. These jobs are part of the same core because of the basic preparation required for each, not because of any similarity in the specialized work which would follow the core courses.

Service occupations will increase more rapidly percentage-wise than any group except technical. Approximately 24 percent of the jobs of the future will be in the Occupational Core areas including the semi-skilled. Less than 2 percent of the 24 percent will require college graduation. Therefore, 22 percent of the high school population should be enrolled in the Occupational Core. The ability levels in this group will vary more than in any other; therefore, the basic portion of the core courses must be general in nature.

Students who plan or are expected to enroll in this core should have special attention during the elementary years to make certain the basics are learned through a series of successful experiences. Various teaching methods must be used with this group. The tendency to drop out later must be recognized and rectified whenever possible.

No special work would be given this group in the 9th grade except the General Occupations course and special, individual counseling.

Those entering service occupations should be enrolled in occupational practice shops where emphasis is placed not only on the skills required, but on employment attitude involving traits such as self-discipline, learning to cooperate with fellow workers, respect for property, and the concern for safety. The success of occupational practice shops depends primarily on the ability of the teacher, particularly his interest in the pupil and his ability to individualize instruction.

Those entering semi-skilled or lower level skilled jobs should take exploratory work in industrial arts and should be allowed to concentrate on an area of interest as soon as this has been adequately determined.

High school graduation should be encouraged but not required. In some of the programs, course structure should lead to certificates rather than diplomas.

Reading, writing, basic arithmetic, and social studies should be stressed through the 10th grade. Concentrated work in a specialized job area should be covered during the 11th and 12th grades, or for as much of those two years as necessary. Training should not be prolonged beyond the learning period required. Unnecessary repetition tends to decrease interest and motivation and causes an increased dropout ratio.

Many of the service occupations and some of the semi-skilled ones should involve work experience. Whenever possible this should be of a cooperative nature with employer groups. Work experience with public and private agencies can be arranged in many of the service fields.

In the service occupations, industry has indicated the following jobs as those in which training is most needed:

1. Clothing workers including tailors, seamstresses, dressmakers, power machine operators, etc.
2. Dry cleaning workers including spotters and pressers.
3. Food service group including waiters, waitresses, carhops, etc.
4. Delivery service including delivery men, letter carriers, etc.
5. Beauty culture including cosmetologists, barbers, etc.
6. Nurses aides including core work for practical nurses.
7. Institutional workers including maids, porters, ward assistants, etc.
8. Custodial service including janitors, window cleaners, etc.
9. Housekeeping service including maids, porters, etc.
10. Frozen food service including processing, care, etc.
11. Dishwashers, kitchen workers, etc.
12. Cooks including caterers and cafeteria workers.
13. Meat carvers, pantry workers, etc.
14. Bakers, cake decorators, pastry cooks, etc.
15. Homemaking service including child care, geriatrics, social work, aid, etc.
16. Watchmen and guards.

Eighteen job areas were listed by employers in the service fields. Included also, in addition to the above, were police science and fire science. These two occupational areas will be covered under the Technical Core Program.

Of the 18 job areas listed, 6 are currently offered in Pittsburgh vocational schools. Five of the 18 would require some post-high school work for complete entrance-level proficiency. Industrial recommendations also indicate a need for all service employees to have courses in public relations and sales training. This would require that a minimum of one basic course in these areas be taken in the Business Core Curriculum.

In the semi-skilled areas of employment, industries indicated the following 17 job areas which require special training. Many of these semi-skilled jobs are directly related to skilled occupational areas except that the scope of the training is more limited. For example, a machine operator would be trained rather than a machinist. The following jobs have been recommended for training:

1. Assemblers of various types including fitters, erectors, etc.
2. Helpers in trades such as plumbers, electricians, etc., and including specific jobs such as sheetmetal solderer, form builder, etc.
3. Machine operators including lathe, ribbon machines, heat sealing machines, etc.
4. Equipment operators including road equipment, graders, power shovels, etc.
5. Maintenance workers, both building and equipment.
6. Production workers including grinders, filers, buffers, polishers, etc.
7. Power machine repairmen (machines such as outboard motors, lawn mowers, etc.).
8. Press operators including punch, forming, web, etc.
9. Installers and routine servicemen.
10. Elevator operators including other building service.
11. Dippers, icers, etc.
12. Photo processers, developers, etc.
13. Bindery workers in several classifications.
14. Chemical mixers and other physical science assistants.
15. Truck drivers, cab drivers, delivery drivers, routemen, etc.
16. Furniture repair workmen.
17. Horticultural workers including gardeners, greenhouse workers, etc.

Training in 5 of the job areas listed above is currently offered to some extent. Training for all 17 can be completely covered in high school. None requires post-high school work if specialization of one year is given following the completion of the Occupational Core.

There are opportunities in these core jobs for both girls and boys. In the service areas, the opportunities are about equal. In the semi-skilled jobs, many more girls will be hired in the future if they take the required training. In many industrial areas of the nation, girls constitute as much as 30 percent of the semi-skilled labor force.

The Vocational Core Curriculum

The Vocational Core would consist of most of the jobs for which training is currently offered in the vocational schools. Most of these would be of the trade and industrial nature.

The program would also include all apprenticeship training. These programs are declining nationally and even to a greater extent in the Pittsburgh SMSA. The Bureau of Apprentice Training, Department of Labor, recommends a training ratio of one indentured apprentice for each five skilled craftsmen. Assuming an average training period of four years, there would be 2.5 apprentices graduated each year per five journeymen, or a ratio of 5 percent replacement annually. Currently, less than ½ of 1 percent annual replacement is involved in apprenticeship programs. It is not likely that more than 3 percent will ever be recruited in the skilled trades areas in the future. This is barely sufficient to maintain current membership figures and to replace the approximately 2.7 percent in each trade who retire annually. Programs currently in operation will train less than 1/10 of the craftsmen who must be added to the work force by 1970.

Most of the students in this core program will be in non-apprenticeship skilled areas. These occupations will remain at approximately the current percentage as related to the over-all employment. Approximately 18 percent of the total work force by 1967 will be in skilled occupations. Of this total, 6 percent will be employed from college graduate groups and 12 percent from those with high school graduation and/or some post-high school work. Therefore, at least 12 percent of the high school population should be enrolled in the Vocational Core. Currently, less than one-fourth of this number are receiving vocational training in skilled areas.

All those entering the Vocational Core Program should take exploratory work during the junior high school grades in industrial arts, and should be allowed to concentrate on an area of particular interest as soon as this has been adequately determined.

High school graduation should be encouraged for the majority of this group of students. In all areas, certificates of completion should be issued regardless of graduation, if the program has been adequately completed.

Reading, writing, arithmetic, history, and social studies should be stressed through the tenth grade in the comprehensive school. Additional work in technical writing should be required during the two years of specialization. A combined mathematics course should be structured including the concepts of algebra, geometry, and trigonometry which are necessary for adequate performance in the field of specialization. This course should not be completely shop related but should include only the portions of the three mathematical disciplines which are utilizable in the skilled trades.

All students in the Vocational Core should take basic work in drafting, blueprint reading, and schematics. A one-semester specialized course combining these subjects would be the minimum requirement for all skilled workers and would be supplemented by as much as three semesters for some of the specially skilled jobs requiring this additional knowledge.

Many of the skilled occupations should involve work experience in addition to those requiring apprenticeship. Such work experience should be of a cooperative nature with employer groups and should involve both large and small companies. With the exception of programs requiring longer periods of time such as apprenticeship, specialized training for two years is sufficient for the preparation of a skilled worker. Some of the skills can be learned by a large percentage of students in not more than one year of specialized training following the completion of the core program and industrial arts courses of a related nature
following major job areas in which there are, or will be, following major job areas in which there are or will be employment opportunities. These occupations do not include the several combinations and variations which may be part of apprentice programs:

1. Automotive including mechanics, body and fender workers, carburetion mechanics, transmission and electrical systems specialists, etc.
2. Masonry including bricklaying, cement masons, stone, block, and tile workers, etc.
3. Carpentry including cabinetmaking and all specialized areas such as framework, roofs, floors, etc.
4. Appliance maintenance and repair including radio and television, electronics repair, and the repair of freezers, ironers, and various other kinds of mechanical and electrical devices.
5. Electricity including power, wiring, testing, and industrial applications.
6. Machinists including all needed specialty areas in machine tool occupational groupings.
7. Plumbing including the use of all types of materials and covering work on water, gas, waste, vent line, and plumbing fixtures.
8. Printing including photography, offset printing, letterpress work, hand typesetting, linotype and monotype, lithography, binding, etc.
9. Sheet metal including duct work, ventilating hoods, cornices, etc.
10. Shoe repair including hand and machine operation.
11. Welding including heliarc, acetylene, electric, induction tube, etc.
12. Patternmaking including wood, metal, plaster, plastics, and areas involving tool and die techniques.
13. Painting including inside and outside work, and the field of decorating.
14. Refrigeration and air conditioning.
15. Instrument repair and maintenance.
16. Refrigeration equipment repair and maintenance.
17. Layout and loft.
18. Heat treating and metal bonding including kiln operation.
19. Plating, anodizing, vulcanizing.
20. Musical instrument repair, maintenance, and tuning.
21. Tape controlled machine operation and programming.

Of the 21 skilled areas of employment listed above, 11 are currently offered in the Pittsburgh vocational schools.

Sixteen of the 21 should involve some post-high school training in order to qualify for entry-level employment in classifications other than as helpers.

Most of the skilled occupational areas would require two years of specialized training following the completion of the core curriculum.

The Technical Core Curriculum

The Technical Core Curriculum will include all those students going into either a semi-professional or technical field.

Approximately 12 percent of the total work population of 1967 will be in semi-professional or technical occupations. One-half will be recruited from among college graduates. Therefore, 6 percent of the total high school population should be enrolled in the Technical Core Curriculum.

The basic work through elementary and junior high school would parallel the Academic Core. Exploratory work would include all available industrial arts offerings.

This first core year would include most of the basic mathematics required which could be offered in two semesters of a combined mathematics course including the functions of algebra, geometry, and trigonometry which relate to all the technical classifications. Each of these classifications, with the exception of the medical group, also requires drafting and blueprint reading. Two semesters in these areas should be offered in the core program. Technical English, communications, and report writing are required in all these classifications, and a two-semester program should be structured in these fields. A combined basic science course of two semesters should also be structured as a part of the core curriculum.

After satisfactorily completing two semesters in English and related subjects, two semesters in mathematics relating to technology, two semesters in drafting and blueprint reading, and two semesters in combined physical science subjects, the students would be able to select an area of specialization. Each would then concentrate on this area for at least 50 percent of the time spent in the 11th and 12th grades. The remainder of the time should be spent in covering additional academic elective courses.

The establishing of such a Technical Core Curriculum should also involve the examining of all pre-engineering students, many of whom should be routed through the Technical Core rather than the Academic even though they would eventually complete work as engineers. Vocational counseling must be geared to this individual examination and analysis of the student's interest and potential within technical and/or engineering areas.

In the technical and semi-professional occupations, industry has indicated the following major job areas in which there are, or will be, employment opportunities. The 31 general classification areas are divided into 7 family groupings:

Technical Occupations Concerned with the Preparation of Preliminary Sketches, Diagrams, Scale and Full Size Drawings of a Variety of Parts, Assemblies, and Operations:

1. Design draftsmen
2. Engineering designer
3. Tool designer
4. Developmental design technician

Technical Occupations Concerned with Electrical
Electronic Circuits and with Establishing Testing and
duction Methods for Electrical, Electronics, Electro-
chanical, Electro-Optical, and Hydro-Mechanical De
and Mechanisms:

5. Electronics technician
6. Computer laboratory technician
7. Instrumentation technician
8. Research and test technician
9. Electro-mechanical technician
10. Nucleonics technician

Technical Occupations Primarily Concerned with
Application of Mathematical Principles:

11. Stress and weight analyst
12. Computer systems programmer

Technical Occupations Concerned with the App
tion of Mechanical Engineering Principles in Solving
sign, Development, and Modification Problems of Par
Assemblies for a Variety of Products or Systems:

13. Civil technician
14. Engineer development technician
15. Mechanical laboratory technician
16. Tool and die technician

Technical Occupations Concerned with the App
tion of Natural and Physical Science Principles to B
Applied, or Research Problems in such Fields as Metallu
Chemistry, and Applied Physics:

17. Research technician in any one of the phy
science fields
18. Physical science technician specializing in che
try, physics, metallurgy, plastics, etc.

Technical Occupations Concerned with a Variety
Staff and Administrative Functions:

19. Technical writer
20. Technical illustrator
21. Reliability or quality control technician
22. Industrial engineering technician
23. Systems and procedures technician
24. Sales and service technician

Technicians Engaged in Technical Occupations C
cerned with Medical, Dental, and Related Fields:

25. Laboratory technician
26. Operating room technician
27. Dental assistant
28. Dental hygienist
29. Optical technician
30. X-ray technician
31. Nursing technologist including practical nur
and programs for registered nurses if two year
post-high school work becomes available.

In addition to the above, Police Science and Fire
ence programs should be included in this core (see O
pational Core). The curricula would follow the stand
of the F.B.I. school and the Fire Underwriters recomm
dations. The students would be placed not only with pu
agencies, but also in industrial guard and protection c
cities.

In all of the groupings listed above, including progression into pre-engineering, the student could stop after one or two years of specialized training and obtain entry-level employment in one of the technologies in the selected family grouping. He then could later continue his education by returning to school on a full-time basis or enrolling in junior college extended day or university extension programs, and progress into higher level technical positions or into engineering classifications. Such a basic core program allows the student to continue his education and go as far as he likes, or is able, along any of the routes.

This Technical Core Program not only allows greater selectivity by the student, but offers more possibility of an immediate job placement after he completes his education. It also would decrease the large percentage of pre-engineering students who are now dropping out of engineering programs after one or two semesters because they have not been able to continue their education satisfactorily within the current and traditional curricular standards.

Of the 31 technical jobs listed, only 2 are currently offered in the day programs of the Pittsburgh schools. An additional 2 in the medical grouping are offered in evening school and/or through retraining programs. Twenty-eight of the 31 classifications require some post-high school work to acquire full status as a technician, although entry-level employment can be obtained in 17 of the 31 without post-high school work.

Job Opportunities

The specific number of jobs currently available in each of the classifications in all of the core programs must be continuously determined by an annual review of employment trends and by regular consultations with representatives from all types of industry. The scope of each curriculum must be continuously modified and complete course outlines developed covering methods of instruction, instructional aids, length of curriculum, and specific course content. Most of this information has been obtained during this survey. However, it is not reported since to do so would require a separate volume of at least two pages for each of the 109 classification areas listed in the several core curricula. It is recommended that adequate staff be provided the Vocational and Industrial Arts Education Department in order that this material can be combined and maintained on a current basis.

In each of the job areas indicated, there are currently a sufficient number of job vacancies in the Pittsburgh SMSA for at least one class of 25 students to be established. In approximately 2/3 of the job areas a minimum of two classes will be required, but the second class should be started only after adequate preparation and enrollment have been effected for the first class in each job area.

Technical Job Openings

Vacancies in a few of the semi-professional and technical occupations outlined above are not now available in the Pittsburgh SMSA. Currently, industries would be able to employ an average of 390 technically qualified employees per year. Some 15 percent of the technical graduates would have to find employment outside of the four-county area. They, however, would be qualified to obtain jobs in any part of the state or nation if the core concept is adopted.

This small percentage of skilled workers who would be exported would have the effect of providing outside industries with motivation to move into the Pittsburgh area. Therefore, not only would students be qualified to obtain employment, but the over-all economy would be strengthened, and within 5 years after the adoption of such a program, no exporting of technical labor would be necessary.

In some of the technical families there are now full employment opportunities in this areas. They include:

1. All of the medical and related classifications
2. All of the mathematical grouping
3. All of the physical science technicians
4. Approximately 80 percent of the electronics group
5. Approximately 90 percent in the remaining classifications

ADVISORY COMMITTEES

Industrial advisory committees must be established for each of the five core curricula. These committees should consist of members from industry, labor, and community organizations as well as school representatives. Master committees for the cores should develop the materials to be taught in their respective core areas, excluding the skill specialty subjects. After establishing the basic cores, these committees would meet semi-annually to review the programs, evaluate results, and determine general job opportunities.

Additional advisory committees must be formed for each skill specialty. These committees would meet more regularly than the core committees. It would be necessary for the committees to meet rather continuously until course outlines in the skills have been completely established. After that the committees should meet at least every two months to evaluate programs and methods and to report on specialized job opportunities. These skill committees should also assist the school in making referrals, placements, and in post-school follow-up and evaluation.

All advisory committees must have broad industrial representation. Companies of all sizes must be represented and, wherever possible, the supervisor of the job classification being considered should serve on the committee rather than a top-level management official who may not know the specific requirements of the job.

ADULT SCHOOLS

Adult schools in an industrial society should provide educational opportunities for students, regardless of age, who must supplement their prior education in order to obtain or retain employment. In addition, the adult school must provide general academic training for those who need or desire to complete elementary or secondary educational requirements. Programs should be offered for:

1. Adults who have not finished elementary school.
    a. To learn to speak, read, and write the English language.

   - b. To secure an 8th-grade or junior high school diploma.
2. Adults preparing for citizenship.
   - a. To improve their use of the English language.
   - b. To learn the history and principles of American government.
3. Adults who have not finished a high school curriculum.
   - a. To plan a program under counseling and guidance.
   - b. To complete requirements for a high school diploma.
4. Adults, regardless of academic background, who need either short-unit or long-term courses.
   - a. To review and renew skills.
   - b. To become more responsible citizens.
   - c. To gain knowledge to improve home and family life.
   - d. To qualify for promotions in business, industry, and government.
   - e. To prepare for new and emerging occupations due to technological changes.
   - f. To improve mental and physical health.
   - g. To learn homemaking skills.
   - h. To acquire skills and appreciation of music and the arts.
   - i. To participate in activities leading to cultural growth.
   - j. To learn to live and work with others.
   - k. To improve in occupational competency in order to obtain better jobs.

Adult education must present dynamic programs which continually adjust to the changing conditions and needs of the community. In most industrial communities approximately the same number of students will enroll in adult education programs as will be enrolled in the regular secondary day school programs, if adequate curricula are offered and if the community is made aware of the needs for continuing education and training. In expanding industrial areas from 50 percent to 100 percent more students are in adult and/or evening school programs than are enrolled in full-time day curricula in the high schools. In Pittsburgh there are less than one-third as many in adult school as there are in senior high school.

The philosophy of the adult schools should be expressed by the following:

1. Continuous enrollment. The opportunity to enroll must be made available at the time the individual is at his peak motivation, regardless of the time of the year that occurs.
2. Course flexibility. Course outlines and over-all curricula must be motivated by student needs.
3. Individual achievement. Successful participation in adult programs should be determined by the achievement of the individual's goals, regardless of the time necessary for this attainment.
4. Community awareness. Curricula must be adaptable to the particular needs of the individual community. This necessitates an administration
is an integral part of the community and can
the changing needs in the adult program.
5. Immediate application. Adult instruction
impart knowledge or skills which are immed
applicable.
6. Student participation. Maximum student part
tion is an essential ingredient in instructing
7. Instructor competency. Instructors must b
ployed primarily because of their backgroun
perience, and competency in the specialize
ject fields they are to teach.
8. Administrative flexibility. Adult school pro
should not be limited by extending day scho
ministration. They should be separately ad
tered with adult school principals availab
community and industrial contacts in or
gear all offerings to current community and
trial needs.

The adult courses presently offered in Pittsbur
well instructed and, within the administrative restri
established, have been well administered. However,
not practical for a high school principal, or other emp
to serve both as a day and adult school principal.
program is to meet changing community needs, he
be able to spend sufficient time with advisory and s
groups which a dual responsibility does not permit.
time adult school principals should be appointed who
the knowledge and time necessary to develop and c
nate an adequate system of adult school education.

FACILITIES AND EQUIPMENT

Whether located in a comprehensive or a specia
pose school, the shops, laboratories, and classrooms f
cupational and vocational training must be speciall
signed. It is essential that educational specifications
tablished prior to the constructing or remodeling o
school facility. Such specifications cannot be establish
architectural firms nor entirely by school administrat
business representatives. Each curriculum must be eval
and the specific items of course content related to th
cifications and requirements, prior to submitting for
architectural design.

In many instances new and/or modified pro
could not be offered in Pittsburgh because of plan
equipment limitations. Various approaches should
tempted to solve this problem, including the leasi
renting of equipment, the conducting of classes in ind
facilities, and the offering of credit for jointly supe
industrial training programs.

Too often, however, specific curricula have fol
definite patterns established many years ago, and the
been little consideration of the interrelationships i
ricular requirements or the utilization of facilities for
than one curriculum. There should be no administ
differentiation between retraining, NDEA, and r
pre-employment vocational programs. Equipment mu
used for all educational purposes regardless of the or
source of the funds from which such equipment was
chased. In this way, more adequate utilization of stat

federal financing is possible, and better programs can be established at less cost to the local district.

Most of the equipment in the vocational schools is old, obsolete, and inadequate, and should be replaced. There has been no amortization of capital equipment, and total shop budgetary accounts have been barely sufficient to replace minor items such as belts, etc. Replacement parts have generally had to be made by shop instructors. More adequate budgetary allocations for all occupational, vocational, and technical programs must be made.

VOCATIONAL DEPARTMENT ORGANIZATION

The current organization of the Section on Vocational Education and Industrial Arts is on a staff-line relationship. The director is responsible to the assistant superintendent for secondary schools in all matters of administration. He is responsible to the associate superintendent for instruction in all matters involving curriculum development.

The director has line supervisory authority over the vocational schools although only a staff-relationship to the vocational school principals who report through line authority to the assistant superintendent for secondary schools.

This joint staff-line relationship has worked rather well, and the vocational programs have been adequately supervised. Most of the programs offered have been above average on a national comparative basis.

Some of the programs have been exceptional. Of particular merit are the courses in trade drafting, operating room technology, electronics, food service supervision, and related instruction for steam fitters. Many other programs are more than adequate and would be superior if modern equipment were made available.

Only one of the many courses offered should be discontinued, namely, foundry. The number of courses offered in machine shop should be reduced due to present curtailed employment requirements.

Not only should the department have more responsibility for budgetary matters and capital improvement, but it should also be given the responsibility and the funds necessary to maintain up-to-date programs. Capital replacement must be allowed on an annual amortized basis ranging from 5 to 25 years, depending on the type and use of the equipment.

The decision to purchase, rent, lease, or borrow equipment from industry should be left to the director. All four methods must be used to insure adequate and modern programs.

A staff supervisory relationship must exist between the director and the various extension and adult programs which are concerned with training for employment. This planned coordination will be much more necessary with the establishing of additional extension programs, especially at the post-high school level.

The department must be allowed the necessary staff and authority to develop, modify, expand, coordinate, and evaluate adequately all work-centered curricula at all levels of education within the system. It must provide those services whether the program is in a comprehensive or specialized school.

Currently, as explained on page 42, there are two full-time supervisors — one responsible for industrial arts, the other for vocational education. Theoretically, these supervisors have the responsibility to develop curriculum. They, however, have been required to perform too many other functions including the obtaining of supplies, handling of requisitions, etc., and have not been able to devote much time to curriculum development and the coordination of the writing of course outlines and the development of an adequate advisory committee structure.

Recommended Organization

For more adequate control and administration of the expanded programs which are required, we recommend:

1. That the director be allowed sufficient time from routine administrative duties to coordinate adequately the business, occupational, vocational, and technical programs with other school departments, community organizations, and federal and state agencies.
2. That an assistant be appointed to the director who would be responsible for all budgetary and participation items, requisitions, statistics, and reports. This assistant should have a staff of three, one of whom would be in a supervisory capacity and would coordinate budgetary items, equipment, and construction with other staff departments. The other two would be clerical.
3. That a second assistant be appointed to the director who would be responsible for the development, organization, and functioning of the Business, Occupational, Vocational, and Technical Core programs. He would be responsible for staff supervision of vocational principals and teachers. This assistant should have a staff of five supervisors responsible in the following core areas: Business Core, Occupational Core, Vocational Core, Technical Core, and Industrial Arts in the junior high schools, high schools, and specialized schools.

   Each of these supervisors should have one professional and one clerical assistant. The professional assistant would be responsible for coordinating with curriculum supervisors in all subject matter areas, with guidance and counseling personnel, and with teachers in related subject matter fields. The supervisor would be responsible for over-all curriculum development in his core area. This would include advisory committee organization, industrial coordination, the obtaining of materials, equipment, and facilities from all sources including industry.

VOCATIONAL TEACHER EDUCATION AND TRAINING

A basic vocational certificate can be issued when an applicant meets the following standards:

1. Graduation from an approved high school or equivalent education.

2. Specialized preparation which includes two years of approved work-experience in the occupation to be taught beyond the learning period. This usually means six years of experience. Occupational competency must be verified through an oral, a written, and a practical examination.

Applicants who have had no approved professional training or experience in teaching vocational subjects can obtain an interim standard certificate after completing ten clock hours in a non-credit course in methods of teaching vocational-industrial subjects.

To obtain the standard certificate which is valid for three years, the applicant must complete two semester hours of general education and ten semester hours of vocational trade and industrial professional education, including six semester hours of supervised student teaching.

Renewal of the three-year certificate may be made for three-year periods on completion of:

1. Successful teaching experience in an approved school.
2. Eighteen semester hours of professional and general education, including four in general professional and four in vocational trade and industrial professional education.

The temporary standard certificate will be made permanent upon completion of sixty semester hours including those required for the temporary standard as follows:

1. Twenty-four semester hours of general education.
2. Twenty-six semester hours of professional education, eight of which must be in general professional education and eighteen in vocational trade and industrial professional education.
3. A minimum of three years of successful teaching experience.

Combined Utilization of Teachers

Industrial arts teachers are all college prepared and have taken some work in trade areas. Many of them could be used in vocational programs if federal regulations and the state plan concerning financial participation in trade and industrial subjects were not so restrictive.

Most of the vocational teachers in Pittsburgh have exceeded the state certificate requirements and have degrees or are working toward degrees. Many have advanced degrees.

The more comprehensive approach to vocational education which we are recommending requires more diversified teaching. The following three phases are included:

1. Industrial Arts Exploration. This phase is concerned with the development of an understanding and appreciation of our industrial civilization through manipulative experiences. It emphasizes the discovery of occupational interests, the development of skill, shop and home safety, consumer's intelligence, avocational activities, upkeep of the home, and the appreciation of good craftsmanship. It is also designed for students who wish to explore industrial jobs through a variety of industrial arts experiences.
2. Industrial Occupational Program. This program is a recommended phase of the core programs to be
handled in the comprehensive school. It is
cerned with developing proficiency and r
knowledge in a broad occupational field. I
phasizes the training of selected students i
manipulative skills, technical knowledge, atti
safety, and habits necessary for successful ent
into a specialized training program in an oc
tional area and basic employment in an indu
3. The Core Specialty Programs. These progran
concerned with the preparation of student
entrance into specific jobs in the various oc
tional areas. Most of these programs woul
offered in the vocational and/or specialized sc

Certain general competencies and knowledge of
are required of all vocational and industrial arts tea
We believe there should be more flexibility allowed in
teachers in either industrial arts areas or job-centered
tional programs. The director of vocational education sl
be allowed to decide this on an individual basis and t
the best qualified teacher available whether he has a
dustrial arts or a vocational background.

All teachers in the core programs, regardless of
grounds, should receive the pre-service and in-service
ing necessary to handle specific assignments. A contin
review of job knowledge and of new industrial me
and requirements should be made by every teacher i
core programs. Work experience should be obtained w
ever possible, and constant industrial coordination is n
sary for adequate teaching of such subjects.

SCHOOL AND INDUSTRIAL COORDINATIO

In considering any vocational education, the sch
and industry must cooperatively determine the areas o
sponsibility which should be assigned to each. Educati
institutions cannot provide every course needed to c
the specific details of each job found in industry. Man
these training responsibilities belong to industry and
be assumed by the companies employing personnel. T
are several solutions to this problem of interrelation o
sponsibility. They depend on the scope of training ne
and the number of students and industrial employees
are to be involved in such programs. As previously i
cated, all forms of industrial training must be expan
particularly in the smaller- and medium-sized compa
High school industrial arts courses must be increase
number and scope of coverage. Adult school short-t
courses and high school and post-high school curricula
be continuously evaluated and expanded as needs deve
The tools for complete educational and training coord
tion should be made available. The schools and indu
must decide which tool best meets a specific training n

Industry-Education Council

An Industry-Education Council should be establis
to coordinate education and training programs in the P
burgh SMSA. Units of the over-all council should f
tion in each county and in each major school district.
functions of the council should include:

1. Determination of needs for new or modified sch
programs.

2. Determination of needs for industrial training.
3. Recommendation of membership for advisory committees.
4. Coordination of school and industrial visits and inspections.
5. Coordination of cooperative and part-time work experiences both for students and teachers.
6. Recommendation of fiscal and policy matters.
7. Recommendation of legislative matters.
8. Obtaining of gift, loan, and lease equipment.
9. Providing industrial training aids, material, etc.
10. General coordination of occupational programs with employer groups.

It is recommended that the Board-Staff Committee and the Executive Committee for this survey serve as a nucleus of the Industry-Education Council of Pittsburgh.

SUGGESTED VOCATIONAL PROGRAMS

Any recommendations relating to the expanding or modifying of existing vocational education in the City of Pittsburgh must be related to the availability of funds to handle such changes. Fiscal problems are discussed in Section VIII of this report.

Our proposals, therefore, are submitted in three forms as follows:

1. *Assuming that there is no additional money made available for educational programs in the City of Pittsburgh.*

   Under these conditions, we recommend that there be a co-mingling of vocational and comprehensive education under the core concepts explained in this section. All students, regardless of their eventual job plans, would attend a comprehensive school, at least through the 10th grade. Specialization in one of the core curricula would be limited to the 11th and 12th grades, during which time the student would be transferred for as many semesters as necessary to one of the existing vocational schools which would serve as a school of specialized training.

   The necessary expansion of exploratory industrial arts and occupational arts could be handled through the current comprehensive schools and the vocational schools without additional cost, allowing students to attend the nearest comprehensive or vocational school on a part-time basis for such industrial arts orientation.

   Junior high schools and high schools could be surveyed and the necessary combinations effected in order to allow a uniform administrative and organizational system to exist. Some of the smaller high schools might be eliminated and converted into junior high schools. We believe that no high school should enroll fewer than 1,000 students in order to adequately offer the five core programs which would be required in each comprehensive high school.

   Revised curricula required under the core concept could be implemented at little or no cost by obtaining curricula and course outlines used by other school systems where such core programs are in operation. Curriculum development work should be redelegated within the vocational structure in order that there be closer coordination between the curriculum supervisor working on academic programs and the limited staff assigned to structure vocational curricula.

2. *Assuming the passage of federal or state legislation or the increase in local ad valorem taxes which would allow the expenditure of a minimum of $225,000 more per year on vocational education.*

   All the recommendations under (1) above should be followed, and, in addition, the equipment in the current vocational schools should be placed on a capital amortization basis and replaced with modern equipment as needed.

   The vocational and/or specialty schools should be remodeled, one per year, in order to allow the addition of many of the core curricula not currently available which are suggested in this section.

   The vocational administrative staff should be reorganized to allow at least half of the total reorganization recommended in this section.

3. *Assuming that sufficient funds are made available through federal, state, or local sources to allow the complete implementation of all the recommendations contained in this report.*

   It would require $2,180,000 per year, in addition to present budgeted items, to implement all of the recommendations made in this report. However, if state legislation such as proposed in Senate Bill No. 205 is enacted, the total cost to the district would be $762,000 annually.

   This would allow the implementation of all recommendations contained in items (1) and (2) above and the construction of two additional specialty schools, one in the north and one in the central part of the city using existing schools as the base of such construction.

   In addition, it would allow the complete expansion of the vocational department and the expansion of adult and evening school facilities as recommended. Junior college extended day programs would be made possible as well as the adequate staffing of such programs requiring at least a full-time evening school principal for each facility operating an extended day program.

   An additional $6,400,000 in capital investment would be required to construct an all-purpose community college facility for the 2,500 to 4,000 students who should be enrolled in such comprehensive post-high school programs in a city the size of Pittsburgh.

SUMMARY OF RECOMMENDATIONS

1. Both the schools and industries must consider the changing population-age ratios and gear their educational and training programs to the groups which need them most.

2. Changes in job methods and in production time and work standards must be continuously evaluated and incorporated in all educational programs, whether academic or vocational. Changes due to automation should motivate both the employers and the students to concentrate on higher level training programs, rather than consider such changes as detrimental either to the economy or to job opportunity.
3. Curricula and course outlines must be continuously developed and modified to meet current industrial standards. Uniformity must be established to enable industry and the students to know what is meant by a course title, a degree, a diploma, or a certificate of completion.
4. All curricula should include elements of job preparation and, wherever possible, should be interrelated. Every curriculum must develop functional literacy to the extent required in a specific job area and for the sociological adjustment of the student.
5. Parental attitudes must be influenced to allow the group of students not planning a college education to enroll in a core curriculum leading to occupational, vocational, or technical proficiency. The I.Q. of the individual student should not be the prime consideration. Many students currently preparing for college admission should be routed into other core programs.
6. The core curricula as outlined should be adopted as soon as possible to enable the schools to become really comprehensive institutions of learning.
7. Industry and schools of all levels must work together to educate and train a realistic ratio of engineers, technicians, and skilled workers. There should be a minimum of three technicians per engineer and four skilled and/or production workers per technician.
8. Adequate education and training of all students must be accomplished even though some of them may, temporarily, have to find jobs outside the Pittsburgh SMSA.
9. Advisory committees must be established in each major curriculum area and for each specialized occupational field.
10. Adult schools and all forms of extension education must be expanded to meet the needs of students and employers more adequately.
11. Facilities and equipment in vocational and specialty schools must be modernized and replacements made as necessary to keep the programs modern and practical.
12. The vocational department must be expanded in order to adequately plan and administer a complete program of vocational education.
13. Teachers with various types of certificates should be used in vocational and industrial arts programs. The qualifications of the individual, rather than his certificate, must be the determining factor.
14. An Industry-Education Council should be formed to coordinate industrial needs and school offerings and to assist the schools in providing the complete comprehensive education which is so necessary in our expanding world of technology.

SECTION VIII

FISCAL AND PUBLIC POLICIES

Cooperative participation by all levels of government is necessary for the developing and maintaining of adequate occupational, vocational, and technical educational programs. The administrative and legislative policies of the various levels of government determine the adequacy of educational programs. Too often proper coordination is not maintained or is not possible between the levels of government involved and, as a result, fiscal and public policies are not adequately coordinated. This results in inadequate facilities and programs.

THE FEDERAL PROGRAMS

The federal government has participated in many of the types of vocational education covered by this report since the Smith-Hughes Act was enacted in 1917. Expansion and modifications of this program and the addition of national defense and retraining programs have increased the amount and scope of federal aid to the states and school districts.

The present allocation of federal funds is not realistic. More vocational money is spent to teach girls to cook and to sew than to teach both boys and girls how to work in industry. In addition, approximately one-third of all available vocational funds — federal, state, and local — goes to train farmers, although farmers constitute only 6 percent of the labor force. Less than 5 percent goes to train young people for sales work where increasing numbers of opportunities exist.

The rigid division of time in the trade and industrial curricula requires 50 percent shop work and 50 percent academic work. No flexibility is allowed if participation is to be received. These restrictions do not exist in homemaking or agricultural programs. More flexibility in curriculum development and time allocations must be allowed the local administrators if adequate programs to meet local needs are to be developed.

The federal educational programs are not adequately coordinated through a federal education agency. Appropriations for education have been allotted by Congress for various special purposes and have often been added as riders to specialized legislation. As a result of this tendency, programs are administered by the Department of Labor in areas such as apprenticeship and retraining; by the Department of Health, Education, and Welfare in more general educational areas; by the Department of Agriculture in connection with special riders to agricultural legislation; and by other departments on the same basis. In order to utilize and control educational funds adequately, it is necessary that they all be coordinated through one agency or department. It would probably be advisable to establish a separate department of education for this purpose. The heterogenous operation currently in operation is too easily influenced and controlled by employee groups, industrial groups, educational associations, etc. Due to such controls by special interests, adequate coverage even within fund limitations has not been possible.

The President's panel on vocational education recommended major appropriation increases but did not complete its responsibility by recommending the elimination of restrictions currently imposed on vocational programs by type and level of job. The lopsided national picture of jobs begging for men, while men remain unemployed, must be solved and can be done so only by revision of educational and training standards. The piecemeal approach of ARA, MD and T, etc., will not solve the problem. Only broadly conceived, unrestricted general vocational education legislation will allow the states and local school districts to develop solutions which will work in their individualized areas.

Pending Federal Legislation

If currently proposed federal legislation related to vocational education is approved, Pennsylvania can expect a minimum of $49,000,000 for the fiscal year beginning July 1, 1963. Actually, the amount to be received by Pennsylvania could be as much as double this figure since only $831,000,000 of the total recommended appropriation of $1,500,000,000 is allocated state by state on a population basis.

Of the allocated funds, Pennsylvania would receive approximately the following amounts:

$ 7,400,000 for student loans

$ 1,225,000 for student work-study programs

$ 3,500,000 for community colleges

$ 125,000 for statistical services

$24,125,000 for programs in elementary and secondary schools

$ 5,000,000 for science, mathematics, and foreign languages

$ 1,000,000 for guidance and testing

Even though the amounts indicated above may be made available, it is probable that Pennsylvania will not be able to use all of them. The Commonwealth has, in the past, not utilized all of the federal funds and facilities made available. This has been particularly true in connection with NDEA grants. Too large a proportion of the money available to the state has not been adequately requested and used within the school districts and, therefore, funds have been returned to the federal government for reallocation to other states.

In any event, it appears certain that more federal money will soon be available for vocational and related educational programs, and Pennsylvania will certainly receive its prorated share. With the development of a more adequate state plan, considerably larger allocations can be made to local districts operating vocational programs.

Federal Aid to General Education

Federal aid is required for adequate local education at all levels. The difference between the programs which various states can offer on the same tax structure makes it essential that there be some equalization. The average expenditure for education per pupil varies from $224 in Alabama to $726 in New York.

The need for federal aid at the post-high school level is illustrated by the fact that a year of college in most states without adequate free education costs about $1,750, yet more than half of all American families earn less than $6,000 a year.

STATE FISCAL AND LEGISLATIVE POLICIES

The Commonwealth of Pennsylvania and the school districts of the state have historically participated too little in and spent too little for the educational programs which are needed for complete student coverage and for bolstering the economy. There has been a very restrictive public and legislative policy on educational expenditures. In most areas of education the state spends considerably less than any of the large industrial states; and in most areas of education and taxation, the participation is considerably less than the national average.

The Governor's Committee on Education has compiled comparative state statistics which were published in 1961. Several of these statistics relating to state and local tax collections are tabulated below showing the national averages, the amounts for Pennsylvania including the position among the states, and the national ranges. The figures reported by the committee are for 1959-1960, and positions among the states are based on the 48 states in existence at that time. In most instances Alaska and Hawaii would exceed the amounts and rates for Pennsylvania which would lower even further the relative position.

Comparative National and State Tax Collections

	National Average	Pennsylvania (Amount and Position)	Range
State and local tax collections for $1,000 personal income	$ 84.93	$ 72.46 (42nd state)	$ 64.54 to $122.84
State and local tax collections per capita	$183.59	$158.27 (35th state)	$109.06 to $264.53
State tax collections per $1,000 personal income	$ 41.66	$ 36.47 (40th state)	$ 21.78 to $ 83.56
State tax collections per capita	$ 89.77	$ 79.61 (37th state)	$ 56.59 to $149.61
Local tax collections per $1,000 personal income	$ 43.27	$ 35.99 (31st state)	$ 12.63 to $ 73.82
Local tax collections per capita	$ 93.82	$ 78.66 (29th state)	$ 28.58 to $156.71
Property tax collections for $1,000 personal income	$ 39.59	$ 26.70 (37th state)	$ 13.24 to $ 68.24
Property tax collections per capita	$ 84.95	$ 58.32 (34th state)	$ 22.77 to $133.33

Pennsylvania more nearly approaches the national averages in expenditures for school purposes than in tax collections. It, however, ranges from the 15th position to the 32nd position among the states as indicated in the following tabulations of expenditures. It does not equal any of the large industrial states in this respect.

Comparative National and State School Expenditures

	National Average	Pennsylvania (Amount and Position)	Range
State and local school expenditures per $1,000 personal income	$36.81	$36.70 (32nd state)	$ 25.53 to $ 57.00
State and local school expenditures per capita	$79.58	$80.16 (21st state)	$ 48.32 to $125.55
State school expenditures per $1,000 personal income	$13.40	$14.32 (24th state)	$ 2.15 to $ 38.58
State school expenditures per capita	$28.96	$31.28 (15th state)	$ 4.12 to $111.67
Local school expenditures per $1,000 personal income	$23.41	$22.38 (27th state)	$ 4.80 to $ 41.47
Local school expenditures per capita	$50.62	$48.88 (29th state)	$ 13.88 to $ 84.00

Similar comparisons were made in the various tax categories in relation to percentages of increase in taxes by state from 1942 to 1957. Pennsylvania was low in all tax areas. For example, it was next to last among the states in increased local tax collections and was last of all the large states in percentage of increase in local property taxes. In this category the national average was a 190.4 percent increase. In Pennsylvania the increase was 90.6 percent. The other large industrial states had increases ranging from 119.7 percent to 356.7 percent.

The ad valorem taxes in Pennsylvania do not exceed the rates in any of the industrial states. In fact, the property tax for school purposes is approximately one-half the amount paid in the twelve largest industrial states.

The absence of a state income tax and the fact that local taxing of income is based entirely on residence within a taxing district have resulted in less than 60 percent of the amount of revenue which could be obtained from a uniformly applied state-wide tax structure.

The only tax which has been a deterrent to the establishment of new industries is the corporate tax. The small rate difference, however, would not be a major deterrent, but the requirement of the pre-payment of corporate taxes has deterred industries from establishing branches here.

The Gross State Product

The restrictive public policies and inadequate over-all public expenditures outlined above have adversely affected both the per capita income in Pennsylvania and the Gross State Product. Per capita income is discussed on page 12.

The total value of goods and services produced in this country has changed as follows:

1940	$100,000,000,000
1950	$285,000,000,000
1955	$440,000,000,000
1960-62	$565,000,000,000

Current estimates place the Gross National Product at over $600,000,000,000 by 1965. Pennsylvania, however, will be producing a continuing smaller percentage of the GNP than it has in the past. The Gross State Product declined from 7.4 percent of the Gross National Product in 1950 to 6.8 percent of the Gross National Product in 1960. The decline is continuing and if the trend is not changed, there will be a loss to Pennsylvania of over $11,000,000,000 by 1970 at which time the ratio of the GSP to the GNP will be less than 6 percent.

The only practical method to stop this downward trend and to eventually restore the economy of Pennsylvania to the 1950 level, in a peace-time period, is to increase public and private investments in the state. This trend must be started by increasing public investment in projects which have historically created private investments. Such programs are school construction, highways, hospitals, housing, and investments related to natural resources.

It would require public investments of approximately $300 per capita to raise the GSP to the 1950 percentage of the GNP. Each dollar invested in long-term improvements would increase the GSP by approximately $9, and over a ten-year period the per capita income would show an accumulated net increase of over eleven times the per capita expenditure.

Several legislative attempts have been made to revise the restrictive state financial policy and to establish more adequate educational coverage. These attempts have failed because the rural and urban legislators have not cooperated on a logical program which would be of benefit to the entire state. The needs of the labor force, the needs of the economy, and the needs of the Commonwealth have been subjugated to purely local interests and the present inadequate tax structure.

The generally restrictive attitude on taxes and public expenditure has also been demonstrated on the local level, not only in educational matters, but in needed improvements such as highways, rapid transit systems, etc. In these areas, as well as in education, the rural, suburban, and urban populations have not developed a concept which would allow them to work cooperatively together for the benefit of all.

LOCAL FISCAL POLICIES AND PROBLEMS

Urban areas have unique circumstances which create increased costs of education. Some of these factors are:

1. High rates of population mobility.
2. High proportions of students with low economic and educational levels who require special, more expensive education.
3. Increased industrial training needs which require greater diversification of education.
4. Higher living costs which require the payment of higher salaries.

Accompanying these greater needs are more difficult problems in raising local tax revenues. Some of these are:

1. Disappearing taxable property. There is a continuously diminishing amount of taxable property located within urban areas which are restricted geographically from expanding into adjacent suburban districts. Increased federal construction, tax-free school construction, construction of free-ways, public housing, etc., are seriously affecting the taxable property base in such urban areas.
2. Deterioration of values. Large numbers of home owners who could afford to maintain their property adequately, and thereby maintain the assessed value, have left the urban areas for the adjacent suburbs. Tenants have replaced home owners and deterioration has resulted in a loss of approximately a third of the house value.

In spite of these factors, the financial support available to the Pittsburgh Public Schools from the Commonwealth is far less than that allowed to suburban and rural districts.

The 1962 Statistical Report of the Superintendent of Public Instruction shows that first and second class school districts enroll 27.4 percent of the children of the state, that they spend 29 percent of the total expenditure for education, and receive only 19.9 percent of the subsidies paid by the state.

The inequity in present subsidies is more serious in Pittsburgh. The city schools expect to receive only about 21 percent of the total budget for 1963 from the state while many rural districts will receive from 80 to 90 percent from the state.

The legislature justifies this serious discrepancy on the theory that it is equalizing educational opportunity through a subsidy formula based solely on the market value of real estate per student enrolled. Some equalization is undoubtedly necessary, but equalization by considering real property value only is based on the false premise that most wealth is in the form of ad valorem holdings. This is not true. In fact the citizens of Pennsylvania earn enough each year to purchase all the ad valorem holdings in the state. Therefore, income should be considered at least as much in equalization as property values.

Regardless of the location or value of real property, students must be educated where they live. Therefore, a large proportion of any state subsidy must be granted on an average daily attendance or average daily membership basis.

Many districts with a high income ratio per capita in Western Pennsylvania have low per capita ad valorem ratios. Therefore, part of the equalization formula must also include a consideration of per capita income or per capita wealth.

States in the nation which have made the greatest strides in education and industry have rejected the so-called pure equalization plan of subsidizing the education of children and have used a foundation-equalization program. This means that such states make a substantial ADA or ADM grant per child and supplement this amount on an equalization basis which considers the local district's wealth and need.

We believe such a system must be established in Pennsylvania and recommend the following three-part formula:

1. Fifty percent of the total amount of money available for distribution by the state should be allocated to the districts on an ADA or ADM basis.
2. Twenty-five percent of the total money available should be distributed to the districts in accordance with the present formula based on the ad valorem ratio per student.
3. Twenty-five percent of the total money available should be distributed to the districts on the basis of the average per capita income of the district as related to student enrollment.

Local Taxing Authority

The Pittsburgh Board of Public Education is authorized by the legislature to levy the following taxes for school purposes:

1. A real estate tax of 16 mills
2. A personal property tax of 4 mills
3. A mercantile tax of 1 mill on retail and 1/2 mill on wholesale sales
4. An earned income tax of 1/2 of 1 percent

These taxes are not actually set by the Board. They could be decreased but not increased. State legislative action is required to raise additional revenue. Therefore, the legislature not only inadequately and unfairly subsidizes the district, but it limits the amount of local tax revenue to a level where the district cannot operate all the programs required. There is little hope for increased revenue from real estate taxes without a rate increase because the total assessed valuation of real estate in the City of Pittsburgh has not changed materially since 1930 when the assessed value was $1,165,200,000. It is now $1,221,500,000.

Personal property valuations which have been maintained only since 1948, which was the first year personal property was taxed, have declined from $352,800,000 in 1948 to $332,000,000 in 1963. The highest personal property assessment was in 1960 with $408,100,000.

On a fixed tax rate base the city schools are not in a position even to maintain current programs because of increasing costs for labor, materials, etc. Just to keep levels, types, and adequacy of education offered constant, will require an increase in assessed valuation, the rate of assessment, or the tax rate in the same ratio as the purchasing index which has been constantly increasing due to inflation over the past several years.

The legislature has established too limited a bonding ceiling for school districts. This should be expanded. Local boards must have more authority to build for the future by using future financing. Education, which is an investment in forty years of the future for the average student, should not be conducted as a cash-and-carry business. Parents and students should share the expenses through long-term public borrowing.

Comparisons of Local Taxes

The City of Pittsburgh has set an assessed value to real value ratio of 54.9 percent. It is 50.6 percent for Allegheny County and 42.4 percent state-wide.

The average school tax rate in the cities and municipalities of the Pittsburgh SMSA is 29.07 mills. The average city rate is 16.22 mills. In the City of Pittsburgh, the school rate is 16.00 mills, and the city rate is 37.00 mills on land and 18.50 mills on other real property.

In comparing the rates as applied to the real value of property, the Pittsburgh City School rate is 8.78 mills and the average school rate in other cities of the SMSA is 11.18 mills.

In comparing tax rates for city and school purposes in sixteen cities throughout the nation most closely approximating Pittsburgh in size, we find:

1. That eleven cities which have increased in population and in industrial expansion more than the national average have an average school rate of 30.1 mills and a rate when applied against real value of 11.1 mills. The school rates in these cities average 163 percent of the rate for all other city purposes.
2. That five cities which have increased in population less than the national average or have declined in population have an average school rate of 18.7 mills, or a rate of 8.9 mills when applied against real value of property. The school rates in these cities average 58 percent of the rate for all other city purposes.

Pittsburgh follows the pattern of the cities with declining economies. Here the actual rate for schools is 16.0 mills, the real rate is 8.8 mills, and the schools rate is 57 percent of the rate for all other city purposes.

We believe it should be obvious from the above, and from other comparisons made in this section concerning state and local expenditures for education, that more must be spent by both Pennsylvania and Pittsburgh to provide the amounts and levels of education required.

All legislators, board members, and school administrators must be representative of the needs and attitudes of the public. They all must be oriented to the comprehensive needs of a technological society. They cannot be limited in their ideas or philosophies. They must plan for, finance, and administer the total educational program needed by the total society they represent.

THE JUNIOR COLLEGE

Many of the legislative proposals to establish post-high school educational facilities are limited to the technical institute type of junior college. This has been due primarily to opposition to a comprehensive junior or community college expressed by some of the public and private colleges and universities. This attitude is unrealistic since private colleges will actually prosper with the establishing of comprehensive public two-year institutions.

In areas of the United States where comprehensive junior colleges have been established, there has been an increase of approximately 50 percent in the number of upper-division students registered in private colleges, an increase of over 70 percent in the number of graduate students, and less than a 20 percent decrease in the number of lower-division students. The private colleges have actually benefited in having a more balanced student body since they have not been required to work with the very high percentage of lower-division students who currently are failures and/or dropouts. The establishing of public junior colleges of a comprehensive nature will allow the four-year colleges and universities to concentrate on higher learning and to become the prestige institutions they desire to be.

The Cost of Post-High School Education

All legislative proposals currently being considered relating to junior colleges require that tuition be charged the student to the extent of one-third of the total cost of maintaining and operating the institution. This will adversely affect the number of students who will be willing or able to enroll, and will not allow the training of a sufficient number of highly skilled and technical workers to bring new industry into the area or allow current industries to expand and diversify. Several states (approximately one-fourth) charge tuition of one-third the cost or more; however, none of these, with possibly two exceptions, is an area in which the economy is expanding, and in only one of the states is population increasing at a ratio equal to the average national increase.

All of the states which are developing economically and attracting new industries, and which are establishing an atmosphere in which existing industries can expand, offer post-high school education at least through the junior college level at a cost considerably less than the one-third tuition proposed in Pennsylvania. In most instances, the cost to the student ranges from 15 percent down to no charge.

This is another example of fiscal and public policy affecting the economy. Continued restrictive public expenditure policies in Pennsylvania will guarantee only a further economic decline in comparison to the other industrial states of the nation. Pennsylvania must not only plan its economic recovery, but must be willing to finance recovery plans.

SUMMARY OF RECOMMENDATIONS

1. Federal vocational education programs must be more centrally coordinated and more adequately financed. Federal aid is necessary for both vocational and general education.
2. The inadequate expenditures for education by the Commonwealth of Pennsylvania must be increased to at least the average level found in the other large industrial states.

3. Over-all public expenditures in Pennsylvania must be increased to the extent necessary to improve the Gross State Product ratio to the Gross National Product.
4. Local expenditures for education must be increased to at least the average level found in cities which are maintaining an expanding economy.
5. The state subsidy plan for education must be revised to allow a fair distribution between rural and urban districts. State financing must go where the children are and not where the ad valorem property is not.
6. Local school boards, even appointive boards, must be given more adequate taxing authority or higher taxing limits within which they can operate adequate educational programs of a comprehensive nature.
7. Public education must be provided at the post-high school level. Such education should be free or nearly free, of tuition cost and should include:
    - a. A COLLEGE TRANSFER PROGRAM equivalent to the lower-division curricula of state universities and colleges for those who plan to continue their education at an advanced level.
    - b. A VOCATIONAL EDUCATION PROGRAM for those individuals for whom two years or less of training will give an understanding of the community and of the world in which they live, and an opportunity to acquire specific skills leading to employment or advancement on the job.
    - c. A PROGRAM OF GENERAL EDUCATION which will provide through planned experiences the common knowledge, skills, and attitudes needed for each student to be effective as an individual, a family member, a worker, and a citizen.
    - d. A GUIDANCE PROGRAM which will provide vocational, educational, and personal counseling to assist the student in his selection and pursuit of a life work compatible with his interests, aptitudes, and abilities.
    - e. A PROGRAM OF COMMUNITY SERVICE, to be provided in cooperation with other educational institutions serving the community, which will meet the cultural, educational, and vocational needs of interested people living in the community.

SECTION IX

FUTURE PLANS AND POTENTIALS

Throughout the several sections of this report, we have indicated that the economy, the employment-unemployment ratio, the amount and level of available education, and the adequacy of educational offerings have all contributed to the general population and economic decline of the Pittsburgh SMSA. Recommendations contained in each of the preceding sections of this report have indicated the factors which must be considered by the community and public agencies in order to redevelop this area into a thriving metropolitan complex.

We do not believe that the economy has declined to such an extent that it cannot be rebuilt. In fact we are certain that forward-looking, progressive changes made now would have positive results within a very few years. Fortunately for the Pittsburgh area many business, community, and educational groups also believe this. They are currently involved in several programs which will assist materially in revitalizing the economy. The major programs of this nature currently in operation are discussed below.

THE RENAISSANCE OF PITTSBURGH

During recent years several groups in the City of Pittsburgh have worked constructively to rebuild the physical and cultural features of the city. This renaissance is the result of the cooperative efforts of many individuals and groups, spearheaded by the Allegheny Conference on Community Development, a non-profit organization composed of the area's industrial, business, government, and educational leaders.

Among the more important features of the renaissance have been a flood control network, Point State Park and Gateway Center, Mellon Square Park with six levels of underground parking, major airport development, the construction of many modern office and industrial buildings, the beginning of highway improvement, new parks and recreation facilities, and a new civic auditorium.

Nearly one-fourth of the central business district has been completely rebuilt and important projects are in evidence in every part of the city.

Capital Improvement Programs which are planned for 1962-1967 include Urban Renewal and Redevelopment at a projected cost of $20,000,000; Public Works in the amount of $18,000,000; Water Department Improvements of $10,000,000; Lands and Buildings, $3,000,000; Parks and Recreations, $6,000,000; Traffic Planning, $500,000; City Planning, $250,000; and Parking, $600,000.

As we have indicated in Section VIII of this report, such expenditures for public improvement projects will materially bolster both the public and private economies. They will provide more employment and will offer more opportunities for the more highly educated and trained work force which the district must produce.

REGIONAL INDUSTRIAL DEVELOPMENT CORPORATION OF SOUTHWESTERN PENNSYLVANIA

The RIDC has been established to plan and assist in the development of Southwestern Pennsylvania. It is engaged in building and preserving employment opportunities and strengthening the economic base of the region. The board of directors includes representatives from management, labor, government, and education.

The officers of RIDC recognize that no area in an industrial economy stands still. If the region is to grow, it must anticipate change and adjust to it. To accomplish this, the corporation will provide credit and incentive to assist new industries to locate in Southwestern Pennsylvania and to help current industries expand and diversify. It will assist in finding and financing industrial development sites, and it will serve the area through a Scientific and Research Advisory Group.

The corporation is very interested in education, training, and retraining. An active committee is working on programs for the retraining of the unemployed. This committee recognizes the need for advanced training, specialty training, and technical training, and is doing a great deal to promote such programs.

By following the developmental programs it has proposed through to constructive conclusions, the RIDC will materially aid Southwestern Pennsylvania in redeveloping a prosperous economy.

PLANNING COMMISSION

The Planning Commission is setting up a Statistical Research Center in Pittsburgh which will catalog by digital methods the area characteristics. This will allow for future planning in industrial development, traffic and transportation studies, building codes and ordinances. It will assist those agencies engaged in both industrial and educational developments.

Educational programs will be coordinated with RIDC projects, and an attempt will be made to arrange the availability of industrial sites in such a way that new industries can be brought into the area and education can be provided near the new facilities.

Redevelopment planning and the computer research center are an extension of the urban renewal projects which were implanted during 1960. The Planning Commission was very active in working with interested groups in all phases of renewal and renaissance planning. It will continue the planning and coordination phases of its operation in all major areas of redevelopment.

THE CHAMBER OF COMMERCE

The Chamber of Commerce of Greater Pittsburgh has been operating cooperatively in many developmental programs. Among these have been:

1. Special committee activities in connection with re-training of the unemployed and re-employment.
2. Small business developmental activities concerned with strengthening and expanding small businesses in existence here and in obtaining new businesses for the area.
3. General industrial development including assistance to current and anticipated industrial operations.

EDUCATION AND RESEARCH FACILITIES

The University of Pittsburgh, Carnegie Institute of Technology, Mellon Institute, and a number of other institutions have recently formed the Oakland Corporation. This organization, with adequate financing available, intends to create a giant research center and related, small, light manufacturing plants in the vicinity of the university. This project will be similar to the research and manufacturing centers associated with MIT and Harvard in Massachusetts. This holds great promise of employment opportunities in the research fields and in automated manufacturing facilities. Large numbers of jobs should be created which will require that special education and training programs be developed in the Pittsburgh area.

A major step in this direction was recently achieved with the approval by the National Aeuronautics and Space Administration of a space research center for Pittsburgh. Some $500,000 have been allocated for the original establishment. It is estimated that eventually total facilities and capital investment will amount to approximately $20,000,000 from federal funds.

In connection with this facility, the University of Pittsburgh expects to construct a new mathematics and chemistry building at a cost of $7,405,000, the basic space center at a cost of $2,000,000. An eventual expenditure for space and scientific research facilities of $33,000,000 is planned.

To start the research facility, the University will add 40 to 50 outstanding faculty members in the field of space research during the next four or five years. It expects, within the next 10 years, that the number of scientists, technicians, and workers engaged in space-related operations will reach several thousand and that the research center will serve industry through the entire Upper Ohio Valley.

We expect that this facility will be instrumental in establishing many industries engaged in space technology in the Pittsburgh SMSA. Other pending and proposed developmental operations will add additional industries and employment opportunities.

THE FUTURE

Historically, older cities which have maintained relatively undiversified economies have special problems but also important opportunities. Many of the problems facing Pittsburgh now are those which faced eastern seaboard cities many years ago and which are beginning to appear in more cities, such as Cleveland and Detroit. None of these cities, including the historic leaders, should be prematurely written off the growth list. Cities go through life cycles of growth and decline. Thus the fears of permanent economic depression in older cities are often based on false analogies. If sufficient planning is implemented to affect the diversification and change in economy required for more balanced growth, there is no reason why the economy of Pittsburgh cannot recover and continue to expand over the next few years.

To accomplish this redevelopment, all segments of the community must become more aware of the problems facing the schools and those facing industry in connection with the adequate training and utilization of personnel. This knowledge must be obtained through community agencies, parent-teacher associations, coordinating councils, industrial associations, and other groups. It should also be obtained by individuals who are interested in learning about the educational and training problems which affect them and their children and the society in which they live.

The community must be made aware of the reasons for unemployment, employee turnover, job dissatisfaction, and lack of industrial opportunities. Industry, the schools, and employment departments must publicize these problems and the solutions, some of which have been discussed in this report.

It is admirable that the community wants to raise its educational standards. In the future we will need more and more people with more and higher degrees. But our certificates and degrees of the future will have to be more and more specialized. It is becoming more difficult every year to live in the past. The future is happening today. Every member of society must prepare for it and be a part of it.

Comprehensive education and adequate industrial sociological training are needed by all. The community must be made aware of this. Agencies and individuals must demand it. The schools, industries, labor organizations, and public and private agencies must work together to develop the *comprehensive* American citizen of tomorrow. This requires *comprehensive* schools at all levels which the public must understand, plan for, finance, and maintain. The only serious cost for education is in a society which is not adequately training its workers of tomorrow.

APPENDIX

APPENDIX A

COMMUNITY RESOURCE AND ADVISORY COMMITTEE

The following members of the Community Resource and Advisory Committee were appointed by the Board-Staff Committee in May, 1962. The titles and positions listed below were those held as of that date. Refer to the introductory section for the functions and responsibilities of this committee.

Norman E. Adams, President, District School Superintendents Association, Allegheny County
Regis C. Aiken, International Vice President, Plumbing and Pipefitting Industry
Paul Akana, Planning Director, Health and Welfare Association
Melvin W. Alldredge, President, Atlantic and Pacific Tea Company
John C. Alwine, Area Supervisor, Bureau of Apprenticeship and Training, U.S. Department of Labor
Frank R. Armour, Jr., President, H. J. Heinz Company
  Alternate: Ralph B. Johnson, Staff Assistant
Mrs. Joseph M. Barr, Civic Leader
James A. Bauer, President, Greater Pittsburgh Guild of Prescription Opticians of America, Inc.
G. G. Beard, President, United Engineering & Foundry
Dr. A. W. Beattie, Superintendent, Allegheny County Schools
George N. Beckwith, President, Beckwith Machinery Corporation
Donald B. Beecher, President, Equitable Gas Company
Charles M. Beeghly, President, Jones and Laughlin Steel Corporation
  Alternate: J. Herbert Johnson, Vice-President, General Services
J. K. Beeson, President, Pittsburgh Gage and Supply Company
William Block, Publisher, Pittsburgh Post-Gazette
Fred S. Bloom, President, Bloom Engineering Company
Abel R. Bomberault, Chefs Association of Pittsburgh
H. Donald Borger, President, The Peoples Natural Gas Company
William C. Bowden, Executive Secretary, Master Builders Association
Harry H. Brainerd, Executive Manager, Western Pennsylvania Safety Council
J. B. Brandon, Office and Personnel Manager, J. H. Hillman & Sons
Frank H. Briggs, President, Building Owners & Management Association
Thomas C. Broadley, Secretary-Treasurer, Typographical Union Number 7
Robert J. Brocker, President, Pittsburgh Chapter, American Institute of Architects
E. D. Brockett, President, Gulf Oil Corporation
C. K. Brown, Service Manager, Ford Motor Company
Mrs. Earle A. Brown, Member, Governor's Committee on Education
Richard P. Brown, Director of Industrial Relations, Mesta Machine Company
John H. Buckley, Jr., Secretary, Dental Laboratory Association of Western Pennsylvania
Dr. Dora F. Capwell, Director, Psychological Service of Pittsburgh
The Honorable Thomas H. Cauley, Member, House of Representatives, Commonwealth of Pennsylvania
E. K. Chaffey, Jr., Vice President and General Manager, Thompson and Company
A. S. Chalfant, President, A. M. Byers Company
Frank B. Chase, President, Kaufmann's Department Store
The Honorable James F. Clarke, Member, House of Representatives, Commonwealth of Pennsylvania
J. N. Cleary, Business Agent, Sheet Metal Workers, Local 12
Dr. Glen U. Cleeton, Dean, Division of Humanities and Social Sciences, Carnegie Institute of Technology
Aldo Colautti, Mayor's Committee on Economic Development
William S. Conover, President, Pittsburgh Association of Insurance Agents

A. F. Cooke, President, Fawcus Machine Company
W. F. Cooley, Jr., Manager, Frick Building
J. B. Copper, Vice President, Personnel and Compensation, United States Steel Corporation
  Alternate: Warren K. Decker, Head, Training Division
The Honorable Robert J. Corbett, Representative, United States Congress
Mrs. Alfred W. Crozier, Member, Governor's Committee on Education
James M. Darbaker, President, Copperweld Steel Company
The Honorable Irma M. D'Ascenzo, Member, City Council
Arthur B. Davies, Executive Director, Smaller Manufacturers Council
Dr. T. H. Davies, Staff Fellow, Mellon Institute
Hal C. Davis, President, Pittsburgh Musical Society, Local 60, American Federation of Musicians
The Honorable John H. Devlin, Member, State Senate, Commonwealth of Pennsylvania
Robert Dickey III, Executive Vice President, Dravo Corporation
James J. Dillon, Director, Department of Public Safety, City of Pittsburgh
Arthur M. Doty, Manager, Personnel Relations Department, Aluminum Company of America
Lewis L. Doughton, General Manager, Sears Roebuck and Company
Jacob Dressler, President, Pittsburgh District Dairy Council
Robert C. Eazor, President, Eazor Express, Inc.
Jerome Edlis, President, Edlis Incorporated
Arthur J. Edmunds, Executive Director, Urban League
Burford B. Epstein, Eppy's Parking
The Honorable James A. Esler, Member, House of Representatives, Commonwealth of Pennsylvania
Thomas M. Evans, Chairman of the Board, H. K. Porter Company, Inc.
The Honorable Edwin C. Ewing, Member, House of Representatives, Commonwealth of Pennsylvania
Mrs. Frank B. Fairbanks, President, Horix Manufacturing Company
Joseph Feldman, Executive Secretary, Golden Triangle Association
Robert W. Ferguson, General Manager, Commercial Division, Bell Telephone Company of Pennsylvania
Dr. Dorothy C. Finkelhor, President, Point Park Junior College
Louis C. Fischer, American Society of Training Directors
Captain William G. Fisher, Director of the Physical Plant, University of Pittsburgh
William K. Fitch, President, Hospital Council of Western Pennsylvania
Vincent D. Fleckenstein, Gimbel Brothers
Philip A. Fleger, Chairman of the Board and President, Duquesne Light Company
Gilbert Flury, District Manager, Esso Standard Oil Company
The Honorable Thomas J. Foerster, Member, House of Representatives, Commonwealth of Pennsylvania
E. F. Foubert, Vice President, Industrial Relations, Rockwell Manufacturing Company
Clark C. Frame, Director, Labor Relations, Westinghouse Electric Corporation
Harry M. Fritz, President, William G. Johnston Company
The Honorable James G. Fulton, Representative, United States Congress
A. J. Furlan, President, Building Trades Council
Edward Gall, Secretary, Western Pennsylvania Chapter, Inc., National Electrical Contractors Association
Felix Gallino, Director, Maison Felix Beauty School
Earl A. Garber, Chairman of the Board, Harbison Walker Refractories Company
Albert A. Garfold, Secretary-Treasurer, General Teamsters Local 249
Dr. John Geise, Assistant Chancellor, Regional Programs, University of Pittsburgh
W. H. Gilmore, Plant Manager, Braun Baking Company
R. Ward Gittings, Manager, Training and Education, Dravo Corporation
The Honorable Maurice H. Goldstein, Member, State Senate, Commonwealth of Pennsylvania
Gilbert Goodwin, Art Director, Batten, Barton, Durstine, & Osborne
Andrew W. Gottschall, Jr., Regional Director, National Conference of Christians and Jews
Arthur H. Gratz, President, Herbick & Held Printing Company
J. H. Greenwood, Chief Engineer, Radio Station WRYT

Raymond Gries, Senior Business Representative, International Association of Machinists
G. F. Groff, Vice President, Crucible Steel Company
Umberto Guidotti, Business Agent, Kitchen Department, Hotel and Restaurant Employees Alliance, Local 237
Howard R. Hague, International Vice President, United Steelworkers of America
Joseph A. Hajnas, Commercial Artist
Charles J. Hamilton, Manager, Industrial Office, Pennsylvania State Employment Service
Edward J. Hanley, President, Allegheny Ludlum Steel Corporation
Dr. George K. Haudenshield, Member, House of Representatives, Commonwealth of Pennsylvania
James L. Hayes, Dean, School of Business Administration, Duquesne University
David G. Hill, President, Pittsburgh Plate Glass Company
Edwin Hodge, Jr., President, Pittsburgh Forging Company
J. K. Hodnette, Executive Vice President, Westinghouse Electric Corporation
The Honorable Elmer J. Holland, Representative, United States Congress
Thomas L. Holland, Consultant, Vocational Rehabilitation Specialist, Veterans Administration
Earl D. Hollinshead, Manager, John W. Galbreath Company
Albert J. Hood, Vice President in Charge of Personnel, Mellon National Bank & Trust Company
John Huemmrich, President, Retail Gasoline Dealers, Allegheny County
Henry J. Huemrich, General Manager, Webster Hall Hotel
The Honorable K. Leroy Irvis, Member, House of Representatives, Commonwealth of Pennsylvania
John D. Jones, Vice President, Industrial Relations, Koppers Company, Inc.
The Honorable James A. Jordon, Member, City Council
The Honorable Walter T. Kamyk, Member, House of Representatives, Commonwealth of Pennsylvania
George Ketchum, President, Ketchum, MacLeod & Grove, Inc.
The Honorable Harry A. Kramer, Member, House of Representatives, Commonwealth of Pennsylvania
The Honorable J. Craig Kuhn, Member, City Council
J. L. Lally, President, G. C. Hussey & Company
The Honorable Thomas F. Lamb, Member, House of Representatives, Commonwealth of Pennsylvania
Malcolm E. Lambing, Executive Vice President, Pittsburgh National Bank
The Honorable Louis Leonard, Member, House of Representatives, Commonwealth of Pennsylvania
Charles C. Levey, International Vice President, Building Service International Union
Aaron Levinson, President, The Levinson Steel Company
Emil Limbach, Chairman, North Side Civic Promotion Council
Arthur Longini, Mellon National Bank & Trust Company
Harold C. Lund, Vice President, Westinghouse Broadcasting Company
The Honorable Paul F. Lutty, Member, House of Representatives, Commonwealth of Pennsylvania
Walter J. Lyman, Vice President in Charge of Operations, Duquesne Light Company
William J. Lynott, Assistant Manager, Service Department, Sears Roebuck and Company
Edward J. Magee, Executive Director, Allegheny Conference on Community Development
John Mauro, Urban Renewal Coordinator
Dr. Robert B. Mears, Assistant Vice President of Applied Research, United States Steel Corporation
Frank Michalowicz, Superintendent, Industrial Relations, Allis Chalmers Manufacturing
C. J. Milroth, Executive Director, Greater Pittsburgh Dairy Industry Association
Emil J. Minnar, Manager, Educational Services, Instrument Society of America
The Honorable William S. Moorhead, Representative, United States Congress
Richard R. Morganstern, President, Morganstern Electric Company, Inc.
Frank G. Morrison, President, Pittsburgh Press
Robert Mortensen, General Manager, WIIC
George Moses, Commercial Artist
Dr. Ralph Munn, Director, Carnegie Library of Pittsburgh
The Honorable John J Murray, Member, House of Representatives, Commonwealth of Pennsylvania
Thomas H. McCabe, Jr., Executive Director, Printing Industry of Pittsburgh
Dr. J. Everett McClenahan, President, Allegheny County Medical Society

A. King McCord, President, Westinghouse Air Brake Company
Dr. Otis C. McCreery, Assistant to the President, Aluminum Company of America
Very Rev. Monsignor John B. McDowell, Superintendent, Catholic Schools
P. B. McDowell, Administrative Vice President, Pittsburgh Chemical Company
George S. McGill, District Manager, Pennsylvania State Employment Office
  Alternate: Carman B. Smith, Supervisor, Reports and Analyses
The Honorable B. B. McGinnis, Member, State Senate, Commonwealth of Pennsylvania
James I. McGuire, Administrator, Western Pennsylvania Hospital
W. H. McKenna, President, Hanlon-Gregory Galvanizing Company
John H. McLain, Executive Director, Chamber of Commerce of Greater Pittsburgh
The Honorable Leo J. McLaughlin, Member, House of Representatives, Commonwealth of Pennsylvania
Mrs. F. E. McNairy, President, Pittsburgh Council of Parent-Teacher Associations
J. E. McNally, Chairman, Vocational Baking School of Western Pennsylvania, Retail Bakers Association
Emil E. Narick, Assistant General Counsel, United Steelworkers of America
F. W. Okie, President, Union Railroad Company
Steven L. Osterweis, Executive Head, Gimbel Brothers
Robert Page, Supervisor of Training, Jones and Laughlin Steel Corporation
Mrs. Andrew D. Palmer, Fisher Personnel Service
C. D. Palmer, President, Pittsburgh Railways Company
George A. Palmer, Personnel Director, Joseph Horne Company
Joseph Parco, President, Dry Cleaners Guild of Allegheny County
Ray Paulin, Manager, International Business Machines Corporation
Donald C. Peters, President, Mellon-Stuart Company
John C. Peterson, President, Manufacturers Light and Heat Company
Kenneth M. Pfeiffer, Acting Director, Vocational Education, Department of Public Instruction
R. R. Pivirotto, President, Joseph Horne Company
Dr. Homer B. Porritt, President, Odontological Society of Western Pennsylvania
Kenneth R. Query, Secretary, Tristate Industrial Association
Kenneth J. Raynes, Secretary, I.B.E.W. System Council
Leslie J. Reese, Civic Leader
The Honorable Joseph D. Ripp, Member, State Senate, Commonwealth of Pennsylvania
Samuel R. Robb, Executive Director, Retail Merchants Association
Dr. C. Rufus Rorem, Executive Director, Hospital Planning Association of Allegheny County
Paul C. Ross, Research Chemist Technician, Gulf Research and Development
S. M. Rust, Jr., President, Rust Engineering Company
Robert H. Ryan, President, Regional Industrial Development Corporation of Southwestern Pennsylvania
Joseph H. Sabel, President, Local 590, AFL-CIO, Amalgamated Food Employees
The Honorable George J. Sarraf, Member, State Senate, Commonwealth of Pennsylvania
Miss Mildred Savacool, Metropolitan Executive Director, Young Women's Christian Association
W. G. Schmiederer, General Executive Officer, Metropolitan Office, Young Men's Christian Association
The Honorable Edward A. Schuster, Member, House of Representatives, Commonwealth of Pennsylvania
D. E. Schwartz, Regional Manager of Personnel, United Airlines
Robert T. Scott, Manager, Community Relations, Westinghouse Electric Corporation
J. Paul Scurlock, District Manager of Special Accounts, Bell Telephone Company
Donald J. Sherbondy, Director of Industrial Relations, Pittsburgh Plate Glass Company
William G. Shord, Business Manager, Electrical Workers Local 5
Robert Sigmond, Executive Director, Hospital Council of Western Pennsylvania
John O. Simonds, Vice President, American Society of Landscape Architects
The Honorable James C. Simmons, Member, House of Representatives, Commonwealth of Pennsylvania
James P. Sinnott, President, Yellow Cab Company
M. S. Smith, Vice President and Regional Manager, Pennsylvania Railroad
Franklin C. Snyder, General Manager, WTAE

W. Cordes Snyder, [illegible] ident, Bl [illegible] ox Company
John T. Stabile, Wil [illegible] enn Park [illegible] ot
The Honorable Leon [illegible] Staisey, [illegible] ber, State Senate, Commonwealth of Pennsylvania
J. E. Stark, Assistant [illegible] Preside [illegible] lustrial Relations, Westinghouse Air Brake Company
[illegible] A. Stephens [illegible] nior Area [illegible] rdinator, Vocational Industrial [illegible] ation, University of Pittsburgh
[illegible] wart, D [illegible] r, Western [illegible] ion, Pennsylvania Economy [illegible] ue
J. [illegible] Director [illegible] ter Pittsbu [illegible] ort
Mrs. [illegible] Taughin [illegible] Education Ch [illegible] n, Allegheny County Federation
Dr. B. [illegible] e, Jr., Dean, [illegible] ge of Engine [illegible] and Science, Carnegie Institute of Technology
Robert [illegible] pleton, Dir [illegible] reau of Pa [illegible] l Recreation
George [illegible] y, Direct [illegible] nt of [illegible] Works
Harry A. [illegible] President, [illegible] ncil of [illegible] ers No. 40
The Honor [illegible] onald L. T [illegible], Member [illegible] se of Representatives, Commonwealth of Pennsylvania
Frank M. T [illegible], Jr., Presi [illegible] sburgh Stock [illegible] change
Elmer J. Trop [illegible], Executive [illegible] Health and [illegible] lfare Federation
Nickolas Unkov [illegible] Attorney
Emerson Venable, Consulting Engineer, [illegible] g and [illegible] nable
Norman Walker, Vice President, Fisher S [illegible] Company
The Honorable John T. Walsh, Member, H [illegible] Rep [illegible] ves, [illegible] nwealth of Pennsylvania
Mrs. V. Leroy Watson, Member, Pittsburgh [illegible] of [illegible] ent [illegible] her [illegible] ions
Carl T. Westland, Secretary, Carpenters Distr [illegible] ncil
Gradon Willard, Manager of Production, Pitt [illegible] Chem [illegible] C [illegible] y
David Wise, Manager of Administration, Research, Devel [illegible] Safe [illegible] nce Company
Joseph Yablonski, President, District 5, United Mine Wo [illegible]
Ray Zeigler, Manager, General Motors Training Center
Doran Zimmerman, General Sales Manager, Thorofare Mar [illegible]
A. H. Zugger, President, Pittsburgh Hotels Association

APPENDIX B

SURVEY QUESTIONNAIRES

A great deal of information from industries, labor organizations, students, parents, and teachers was obtained by using the several questionnaires which are reproduced in this section of the Appendix. All data received by questionnaire were supplemented and clarified by personal contacts, publications, reports, and statistical evaluations.

Instructions for completing the questionnaires were sent to each group contacted. Summaries of these instructions follow.

Employer Questionnaire 1

This questionnaire was distributed to every business or industry in Allegheny County employing more than 100 workers and to a random sampling of those employing fewer than 100 workers. The confidential nature of the material requested was assured and all companies were notified that no information would be related to a specific company, nor would any responding company be referred to by name.

It was emphasized that employment information by area and by type of worker was very important since it was necessary to project personnel needs even though completely accurate forecasts could not be made by many of the companies.

Under information pertaining to classifications, employee turnover, training information, and work-experience programs, it was asked that the actual present conditions and programs be stressed and explained and that wherever possible projections be indicated.

In many instances follow-up interviews were necessary to develop certain information which fit into the statistical recording pattern desired.

Refer to Appendix pages B-2 to B-8 for specific information requested on Employer Questionnaire 1.

Employer Questionnaire 2

This questionnaire was submitted to those companies replying to Employer Questionnaire 1. Each employer completed from 2 to 10 of these questionnaires on specific job classifications. The job classifications to be covered by each company were determined by a random selection from among the major employment groupings utilized by that company.

The importance of the employment requirements, education and training, and work experience made available for each classification was stressed, and most of the large companies submitted job descriptions and classification summaries in addition to the questionnaires.

From these questionnaires, composite information by classification was compiled and education and training standards established for each of the skill levels described.

Please refer to Appendix pages B-9 to B-16 for the specific information requested on Employer Questionnaire 2.

Labor Union Questionnaire

This questionnaire was distributed to 411 labor union locals in the Pittsburgh area. Its purpose was to determine membership changes since 1950 and to obtain general information regarding the classification of workers, the classification of members, the amount of training conducted by or for the local, and the extent to which the union participates in an advisory capacity with the public schools.

General recommendations regarding high school, trade and technical schools, colleges and universities, and adult school programs were requested.

Refer to Appendix pages B-17 to B-19 for the specific information requested on the Labor Union Questionnaire.

Student Employment Questionnaire

On pages B-20 and B-21 is reproduced the questionnaire used to survey all students in the ninth and twelfth grades in the Pittsburgh Public Schools. Instructions on the use of this questionnaire were given in meetings with counselors and by a two-page summary covering the specific questions. The counselors discussed these instructions with the students completing the questionnaires.

Parents' Employment Questionnaire

A sampling was made of 50 percent of the parents of the students whose questionnaires were completely evaluated. This questionnaire is reproduced on pages B-22 and B-23.

It was stressed in the instructions relating to both the parent and student questionnaires that it is not practical for any school system at any level of education to initiate additional or advanced courses or curricula unless there is sufficient student and parent interest in such programs and the job opportunities to which they relate. The parent responses were all correlated with the student replies, and differences have been reported on and discussed in the body of this study.

Adult School Questionnaire

On pages B-24 and B-25 is reproduced the questionnaire completed by a random sampling by classes of approximately 50 percent of the students attending vocational adult school programs. Specific responses by level of education and by the type of employment for which the student was preparing have been analyzed in the body of this study.

Vocational Teacher Questionnaire

On pages B-26 and B-27 is reproduced the questionnaire which was completed by all teachers in the vocational high schools of the City of Pittsburgh. The recommendations and comments made by the vocational teachers have been summarized in the body of this report.

VOCATIONAL EDUCATION SURVEY
PITTSBURGH PUBLIC SCHOOL DISTRICT
EMPLOYER QUESTIONNAIRE 1

Name of company ....

Nature of business or industry ....

Address ....

Name of person completing questionnaire ....

Title .... Telephone Number and Extension ....

Employment by Geographical Areas

1. Total employment in City of Pittsburgh: ....

2. Total employment in Allegheny County: ....

3. Total employment in Beaver County: ....

4. Total employment in Washington County: ....

5. Total employment in Westmoreland County: ....

Employment by Classification Groups

Unskilled Workers

1. Total current number of *unskilled* workers: ....

2. Total number of *unskilled* workers projected for 1967: ....

(These occupations involve the performance of simple duties that may be learned quickly and that require the exercise of little or no independent judgment, though a familiarity with the occupational environment may be necessary or desirable. No experience in the occupation itself is required for those seeking employment. Typical occupations: wheelbarrow man; laborer, any industry; assembler helper; flagman; bag tier; etc.)

Semi-Skilled Workers

3. Total current number of *semi-skilled* workers: ....

4. Total number of *semi-skilled* workers projected for 1967: ....

(These occupations are characterized by one or more of the following requirements: the exercise of manipulation ability of a high order, but limited to a well-defined work routine; major reliance upon materials or products; judgment limited by its application to a narrow field or by having important decisions made by others. These occupations may require the performance of a limited part of a craft or skilled occupation. Typical occupations: assembler of equipment, machine operator, coil winder, routeman, truck driver, etc.)

Skilled Workers

5. Total current number of *skilled* workers: ....

6. Total number of *skilled* workers projected for 1967: ....
(These craft and manual occupations require predominantly a thorough and comprehensive knowledge of processes involved in the work, the exercise of independent judgment, usually a high degree of manual dexterity, and, in some occupations, extensive responsibility for valuable products or equipment. Workers in these occupations usually become qualified by serving apprenticeships or completing extensive training periods. Foremen of manual and craft workers who spend more than 20 percent of their time in actual operations are included within the occupations of the workers. Typical occupations: bakers, tailors, carpenters, typesetters, plumbers, all-around machinists, toolmakers, welders, electricians, mechanics, etc.)

Service Workers

7. Total current number of *service* workers: ....

8. Total number of *service* workers projected for 1967: ....
(This group includes those occupations concerned with the performance of services for persons that require either direct contact or close association with the individual; occupations concerned with the protection of individuals or of public or private property; occupations related to the cleaning of the interior and equipment of buildings; and occupations concerned with the moving or carrying of equipment, baggage, and other articles. Typical occupations: hotel maids, housekeepers for hotels and institutions, chefs and cooks, waiters, guards and watchmen, firemen and policemen, charwomen and cleaners, janitors, porters, elevator operators, etc.)

Sales Personnel

9. Total current number of *sales personnel*: ....

10. Total number of *sales personnel* projected for 1967: ....
(These occupations are concerned with the sale of commodities, investments, real estate, and services. Also included are some occupations closely identified with sales transactions. Typical occupations: salesclerks; salespersons of wearing apparel, household goods, automotive equipment; printing, publishing and advertising salesmen; precision instruments salesmen; communication equipment salesmen. Related occupations include demonstrators and comparison shoppers. Sales personnel who require a great deal of technical or professional knowledge of college level will not be reported here. They should be listed as semi-professional or professional employees depending on the educational qualifications required.)

Clerical

11. Total current number of *clerical* workers: ....

12. Total number of *clerical* workers projected for 1967: ....
(These occupations are concerned with preparing, transcribing, transferring, systematizing, or preserving written communications and records. The duties of most occupations in this group are performed by mental and manual processes, but also may include the operation of such devices as bookkeeping machines or calculators. Typical occupations: bookkeeper, cashier, office machine operators, general clerks, stock clerks, stenographers, typist clerks, etc.)

Administrative

13. Total current number of *administrative* employees: ....

14. Total number of *administrative* employees projected for 1967: ....
(These occupations are primarily concerned with the performance of office or nonmanual field work directly related to management policies or general business operations. Administrative employees customarily exercise discretion and independent judgment and work under general supervision carrying out special assignments and tasks. Typical occupations: administrative assistant, time study engineers, cost estimators, office managers, etc. If special professional or semi-professional education is required, employees should be reported in these groups rather than as administrative employees.)

Managerial

15. Total current number of *managerial* employees: ....

16. Total number of *managerial* employees projected for 1967: ....
(These occupations are concerned primarily with responsible policy-making, planning, supervising, coordinating, or guiding the work activities of others, usually through intermediate supervisors. Typical occupations: managers or presidents of enterprises; superintendents of construction projects; and, because of their official capacities, treasurers and executive secretaries. All supervisory foremen who spend more than 80 percent of their time on supervisorial duties are also included in this group. "Working" foremen who spend most of their time in operative capacities are included in the appropriate group according to the type of work done.)

Semi-Professional

17. Total current number of *semi-professional* or technical employees: ....

18. Total number of *semi-professional* employees projected for 1967: ....
(These occupations require rather extensive education or experience or a combination of both for the proper performance of the work. The fields of endeavor of the semi-professional or technical worker do not usually require as broad a background or as much initiative and judgment as the professional occupations in dealing with complicated situations. The occupations are typically confined to narrower fields of activity than the professional occupations, and are most often concerned with the technical or mechanical aspects of broad, theoretical fields. Typical occupations: laboratory technicians and assistants, X-ray technicians, draftsmen, surveyors, electronic technicians, nurses, etc.)

Professional

19. Total number of *professional* employees: ....

20. Total number of *professional* employees projected for 1967: ....
(These occupations require a high degree of independent mental activity by the worker and are concerned with theoretical and practical aspects of complex fields of endeavor. Most occupations in the group require extensive and comprehensive academic courses of study or experience of a scope and character to provide the necessary background. Typical occupations: mechanical, civil, or electrical engineer, lawyer, physicist, actuary, teacher, etc.)

21. Please list below the major classifications employed by you. Group related classifications which require the same basic education and training.

Job Classification	Currently Employed	Current Vacancies	Projected Recruiting by 1967	Projected Total Employment May, 1967

(Attach separate sheet for additional listings, if required.)

Classification Information

1. Do you have a formal employee classification plan? ....

2. Do you have job descriptions on all classifications? ....

3. Do your classifications follow the U.S. Department of Labor's "Dictionary of Occupational Titles"? ....

Employee Turnover

1. During 1961, how many employees were:
Hired? ....; Rehired? ....; Laid off? ....;
Retired? ....; Promoted to higher classifications? ....;
Demoted to lower classifications? ....

2. How many workers left your employment for reasons other than Layoff or Retirement? ....

Training Information

1. Do you have a training department? .... How many full-time employees in the department? .... Part-time? ....

2. What training have you conducted since 1-1-62?

Name of Course	No. of Trainees	Length of Course	Should This Program Be Offered by	
			Industry	Public Schools

(Use separate sheet for additional courses)

3. What changes do you plan in your training organization or in your programs?
....
....
....

4. What courses or curricula not currently offered by the public schools should be added to their programs?
....
....
....

5. How many of your employees have attended school or special courses during the past semester?
High school .... Adult school ....
Trade or technical school .... College or university ....
College or university extension .... Total ....

6. Do you have a "tuition refund" plan for employees? Explain: ....
....
....
....

7. Do you have a scholarship plan for employees? Explain: ....

....

....

....

8. Do you maintain post-employment records on employees of additional education or training? .... Are such records used in evaluation? .... In promotion? ....

Work-Experience Program

1. What percentage of your personnel of the future should be recruited by upgrading present employees through training or further education? ....

2. If public school courses were available to upgrade your personnel, would they attend?

Yes .... No .... Doubtful ....

3. Would you accept qualified graduates from vocational schools or classes without actual work experience to fill your vacancies in related positions?

Yes .... No ....

4. Would you participate in a work-experience program?

Yes .... No ....

Please indicate the number of vocational trainees who could be employed in:

a. Summer employment ....

b. Part-time work ....

c. Job connected assignments and study ....

d. On-the-job training ....

5. Please list the programs from which you have employed graduates of local trade, technical, or vocational curricula.

Program	Number Hired	Performance Evaluation as Related to Employees Without Such Training

6. Please suggest modifications, improvements, or additions you would recommend to the current trade, industrial, and vocational curricula offered by the schools in the Pittsburgh Metropolitan Area.

High schools: ....

....

Trade or technical schools: ....

....

Colleges and universities: ....

....

Adult schools or university extension: ....

....

7. What should be the relationship between academic and vocational courses in the curricula aimed at immediate post-school employment?

....

....

....

....

....

8. To what extent should specialization be considered in structuring vocational curricula?

....

....

....

....

....

VOCATIONAL EDUCATION SURVEY
PITTSBURGH PUBLIC SCHOOL DISTRICT
EMPLOYER QUESTIONNAIRE 2

Name of company ....

Name of person completing questionnaire ....

Title .... Telephone number and extension ....

On what basis is the person completing questionnaire qualified to give this information?

- ☐ Supervises the work of employees in this classification
- ☐ Performs liaison between workers and others
- ☐ Assigns employees work
- ☐ Maintains classification or employment records
- ☐ Other, describe: ....

Classification and Employment

1. Classification title used by your firm for this group: ....

2. Other occupational titles which may be used: ....

3. Firm's job description for this classification; attach copy if available.

   ☐ Copy attached ☐ No copy available ☐ Not described

   Other, explain: ....

   ....

4. Number presently employed in this classification: ....

5. Anticipated number to be employed in next 5 years: ....

Indicate the approximate percentage of time employees in this classification are engaged in each of the following activities. If a job description is not submitted, please describe the general functions performed under each activity. Add activities which are not listed.

a. *Working with equipment*: Percentage of time: ....

   Kinds of equipment: ....

   Job functions: ....

   ....

b. *Working with instruments*: Percentage of time: ....

   Kinds of instruments: ....

   Job functions: ....

   ....

c. *Working with production*: Percentage of time: ....

   Kinds of production: ....

   Job functions: ....

   ....

d. *Working with materials*: Percentage of time: ....

Kinds of materials: ....

Job functions: ....

....

e. *Working with machines*: Percentage of time: ....

Kinds of machines: ....

Job functions: ....

....

f. *Working with hand tools*: Percentage of time: ....

Kinds of hand tools: ....

Job functions: ....

....

g. *Working with drawings or handbooks*: Percentage of time: ....

Kinds of drawings or handbooks: ....

Job functions: ....

....

h. *Working with reports or records*: Percentage of time: ....

Kinds of reports or records: ....

Job functions: ....

....

i. *Working with energy or power*: Percentage of time: ....

Kinds of energy or power: ....

Job functions: ....

....

j. *Working in research or development*: Percentage of time: ....

Kinds of research or development: ....

Job functions: ....

....

k. *Working with other personnel*: Percentage of time: ....

Classification of personnel: ....

Job functions: ....

....

1. *Percentage of time engaged in supervision:* ....

Division of supervisory duties: ....

....

6. Indicate the approximate percentage of time employers in this classification are engaged in each of the following levels of work:

Unskilled .... Semi-skilled .... Skilled ....

Service .... Sales .... Clerical ....

Administrative .... Managerial or Supervisory ....

Semi-professional .... Professional . ...

Education and Training

1. Indicate the approximate percentage of present employees in this classification who have completed the following levels of education. Please project any anticipated change in these percentages by 1967.

Percentages	Less than High School	High School Graduates	Trade or Tech. School	A.A. Degree	A.B. or B.S. Degree	M.A. or M.S. Degree	Doctor's Degree
Present Employees							
Employees in 1967							

2. What is the minimum formal education required to qualify an applicant for employment in this classification? (Explain)

....

....

....

....

3. Do you have an organized training program to supplement the formal education of these employees? Yes ( ) No ( )

4. What training courses are given?

....

....

....

....

....

....

....

5. Which of these courses should be added to a school's curricula? Indicate the level of school — high school, college, etc. ....

....

....

....

....

....

....

....

6. Please indicate the courses which should be offered in school to prepare students for employment in this classification. List the courses in the following groupings and indicate whether a thorough or a general knowledge is required.

Mathematics

Courses required	Degree of knowledge necessary

Science

Courses required	Degree of knowledge necessary

Technical Skills

Courses required	Degree of knowledge necessary

Manipulative Skills

Courses required	Degree of knowledge necessary

English, Writing, Communications, Etc.

Courses required	Degree of knowledge necessary

Language other than English

Courses required	Degree of knowledge necessary

History, Geography, and other Social Studies

Courses required	Degree of knowledge necessary

Accounting, Economics, Business Administration, Etc.

Courses required	Degree of knowledge necessary

Supervision, Management, Psychology, Human Relations, Etc.

Courses required	Degree of knowledge necessary

Work Related Curricula such as Apprenticeship and Other Courses or Curricula

Courses required	Degree of knowledge necessary

Work Experience

1. What percentage of future employees in the classification will be placed by upgrading present workers who have completed additional training or education? ....

2. Would you accept qualified graduates from school without actual work experience to fill vacancies in this classification? From vocational curricula: ....
From general academic curricula: ....
If not, how much experience would be required? ....
....
....

3. Would you participate in a work-experience program for this classification? ....
If yes, what type of program? Summer employment: .... Part-time work:
.... On-the-job training: .... Apprenticeship: ....

4. Please evaluate and recommend improvements in the educational programs from which you have hired employees in this classification.
From general or academic high schools: ....
....
....
From trade or vocational schools: ....
....
....
From a 2-year post-high school program: ....
....
....
From colleges or universities: ....
....
....

VOCATIONAL EDUCATION SURVEY
PITTSBURGH PUBLIC SCHOOL DISTRICT
LABOR UNION QUESTIONNAIRE

Name of union ....

Address ....

Name of person completing questionnaire ....

Title .... Telephone Number ....

1. Geographical area covered by your union or local ....
2. Total membership: July, 1950 .... July, 1962 ....
3. Total number of members employed in July, 1950: part-time .... full-time ....; July, 1962: part-time .... full-time ....; Projected employment for 1967: part-time .... full-time....................
4. What percentage of the full-time employed new members were obtained by reorganization or combination of locals? ....
   By expansion of your present organization? ....
5. How many new members were accepted from July 1, 1961 to June 30, 1962 by transfer from other locals? .... Following completion of training? ....
   Following industrial employment? ....
6. Please list below the general classifications of workers which are members of your union.

General Classification	Current Membership	Current Number Employed	Membership Expected July, 1967	Expected Employment July, 1967

7. Do you provide any job training for your membership? ....
8. What training have you conducted since 1-1-62? ....

Name of Course	No. of Trainees	Length of Course	Should This Program Be Offered by	
			Industry	Public Schools

(Use separate sheet for additional courses)

9. If your union has participated with the public schools in any advisory capacity on any vocational course or curriculum, please complete the following:

Name of School	Course or Curriculum	Explain Whether This Program Qualifies the Student for Union Membership, Employment, etc.

10. Should industry accept qualified graduates from vocational schools or classes without actual work experience to fill vacancies in related positions?

Yes .... No ....

11. Should industry participate in an apprenticeship or other school-centered work-experience program?

Yes .... No ....

12. Would you participate in an apprenticeship or other work-experience program with the schools?

Yes .... No ....

13. Would you allow credit for such training by cutting down the length of apprenticeship required?

Yes .... No ....

14. What percentage of industrial personnel of the future should be recruited by upgrading present employees through training or further education? ....

15. If public school courses were available to upgrade your members, what percentage would attend? ....

16. Please suggest modifications, improvements, or additions you would recommend in the current trade, industrial, and vocational curricula offered by the schools in the Pittsburgh Metropolitan Area.

High schools: ....

....

Trade or technical schools: ....

....

Colleges and universities: ....

....

Adult schools or university extension: ....

....

17. What should be the relationship between academic and vocational courses in the curricula aimed at immediate post-school employment of vocational students or apprentices?

....

....

....

....

....

18. To what extent should specialization be considered in structuring vocational curricula?

....

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....

19. Please explain the specific educational requirements, including courses, which are required for a student to become eligible for membership in your organization.

....

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PITTSBURGH PUBLIC SCHOOLS
VOCATIONAL SURVEY OFFICE

STUDENT EMPLOYMENT QUESTIONNAIRE

Student's name .... Father's name ....

Home address .... Telephone number ....

School .... Grade .... Sex ....

Name of school attended last year ....

1. In which curriculum are you enrolled? ....

2. Which option are you taking? ....

3. How much additional education do you plan to complete? ....
....

4. Which schools do you plan to attend? ....

5. If you do not plan to attend college, explain why: ....
....

6. For what job or career do you plan to prepare yourself? ....
....

7. Why did you select this career? ....

8. How did your aptitudes and abilities influence your selection of a career? ....
....

9. Explain why you are or are not interested in preparing for employment in each of the following fields: (Check whether interested or not interested and give reasons.)
   A. *Business*: (accounting, bookkeeping, manager or supervisor, etc.)
      Check one: Interested .... Not interested ....
      Why? ....
   B. *Clerical*: (typist, stenographer, office machine operator, etc.)
      Check one: Interested .... Not interested ....
      Why? ....
   C. *Distribution*: (sales, merchandising, service station attendant, etc.)
      Check one: Interested .... Not interested ....
      Why? ....
   D. *Semi-Skilled Trades*: (assembler, machine operator, coil winder, etc.)
      Check one: Interested .... Not interested ....
      Why? ....

E. *Skilled Trades*: (plumber, carpenter, electrician, baker, etc.)
Check one: Interested .... Not interested ....
Why? ....

F. *Service Occupations*: (cook, waiter, watchman, beauty operator, etc.)
Check one: Interested .... Not interested ....
Why? ....

G. *Technical Occupations*: (laboratory, electronics, dental technician, etc.)
Check one: Interested .... Not interested ....
Why? ....

H. *Engineering*: (chemical, electrical, mechanical, civil, etc.)
Check one: Interested .... Not interested ....
Why? ....

I. *Other Professions*: (doctor, lawyer, teacher, physicist, actuary, etc.)
Check one: Interested .... Not interested ....
Why? ....

10. If you were preparing for any of the areas of employment listed in item 9, would you prefer to attend a comprehensive school which offered such courses or a school specializing in these occupations? (Check one)

Comprehensive School .... Specialized School ....

11. List the courses you have taken and those you plan to take which you believe will help most to prepare you for your chosen occupation:

Have Taken	*Plan to Take*

PITTSBURGH PUBLIC SCHOOLS
VOCATIONAL SURVEY OFFICE

PARENTS' EMPLOYMENT QUESTIONNAIRE

1. School attended by your child .... Grade .... Sex ....

2. Father's occupation .... Currently employed? ....
   Location of employment: In Pittsburgh .... Elsewhere (explain) ....
   ....
   Education completed by father ....

3. Mother's occupation .... Currently employed? ....
   Location of employment .... In Pittsburgh? ....
   Elsewhere (explain) ....
   Education completed by mother ....

4. How long have you lived in the Pittsburgh area? ....

5. How much further education do you plan for your child to complete? (Check one)
   High school .... Trade school .... College (number of years) ....

6. For what career do you want him/her to prepare? ....
   (Name specific job) ....

7. Did you or the child select this career? ....
   Why was this career selected? ....

8. How did your child's aptitudes and abilities influence the selection of a career? ......
   ....

9. Explain why you are or are not interested in having your child prepare for employment in each of the following fields: (Check whether interested or not interested and give reasons.)

   A. *Business*: (accounting, bookkeeping, manager or supervisor, etc.)
      Check one: Interested .... Not interested ....
      Why? ....

   B. *Clerical*: (typist, stenographer, office machine operator, etc.)
      Check one: Interested .... Not interested ....
      Why? ....

   C. *Distribution*: (sales, merchandising, service station attendant, etc.)
      Check one: Interested .... Not interested ....
      Why? ....

D. *Semi-skilled Trades*: (assembler, machine operator, coil winder, etc.)
Check one: Interested .... Not interested ....
Why? ....

E. *Skilled Trades*: (plumber, carpenter, electrician, baker, etc.)
Check one: Interested .... Not interested ....
Why? ....

F. *Service Occupations*: (cook, waiter, watchman, beauty operator, etc.)
Check one: Interested .... Not interested ....
Why? ....

G. *Technical Occupations*: (laboratory, electronics, dental technician, etc.)
Check one: Interested .... Not interested ....
Why? ....

H. *Engineering*: (chemical, electrical, mechanical, civil, etc.)
Check one: Interested .... Not interested ....
Why? ....

I. *Other Professions*: (doctor, lawyer, teacher, physicist, actuary, etc.)
Check one: Interested .... Not interested ....
Why? ....

10. In preparing for any of the areas of employment listed in item 9, would you prefer that your child attend a comprehensive school which offered such courses or a school specializing in these occupations? (Check one)

Comprehensive school .... Specialized school ....

11. Please suggest modifications, improvements, or additions you would recommend to strengthen the current trade, industrial, or vocational curricula now offered by the schools in the Pittsburgh Metropolitan Area.

High schools: ....
Trade or technical schools: ....
Colleges and universities: ....
Adult schools or university extension: ....

(Use separate sheet for explanation of suggestions, if required.)

PITTSBURGH PUBLIC SCHOOLS
VOCATIONAL EDUCATION SURVEY
ADULT SCHOOL EMPLOYMENT QUESTIONNAIRE

Age .... Sex .... School attended ....

What formal education have you completed? ....

Where are you currently employed? ....

Job classification ....

Length of time with this company ....

Length of time in this type of position ....

I hope to prepare for the following position: ....

List classification ....

What additional education is required? ....

Does your employer have a training program? (Check one) Yes...... No...... Unknown......

What courses have you taken on the job? ....

....

Does your employer maintain records of your training and the additional school courses you are taking? (Check one) Yes .... No .... Unknown ....

Adult school courses you are currently taking: ....

....

Adult school courses you plan to take: ....

....

Check your reason for taking these courses: At the request of my employer ....

On my own initiative for advancement possibilities .... As general education .... For hobby or interest purposes ....

Are you interested in obtaining a Certificate of Completion for the courses in which you are enrolled? (Check one) Yes .... No ....

Are you interested in completing the requirements for high school graduation? (Check one) Yes .... No ....

Would you be interested in taking work which would lead to a technical or semi-professional skill? Yes .... No ....

Should such courses be at the post-high school level?

Yes .... No ....

Should college credit be allowed?

Yes .... No ....

Would you be interested in completing a 2-year college program leading to an A.A. Degree? Yes .... No ....

Are you interested in a 4-year college program?

Yes .... No ....

Please indicate the technical, semi-professional, or professional programs which you would be interested in completing:

....

....

....

Are you taking, or have you taken, college or university extension courses? List the courses you have taken:

....

....

....

List any college extension courses you plan to take:

....

....

....

VOCATIONAL TEACHER QUESTIONNAIRE

1. Name of teacher ....
2. Name of school ....
3. Type of vocational curriculum taught ....
4. Length of time required to complete ....
5. Grade levels involved ....
6. For what specific jobs does this program prepare students? ....
....
7. Is work experience required? ....
8. What percentage of students are currently in work-experience programs? ....
9. What percentage of students find immediate employment? ....
10. Number of students now enrolled in curriculum ....
11. Maximum number that could be handled with present facilities and equipment ....
Do you have a set curriculum? .... Course outline? ....
Who prepared the course outline? .... When? ....
12. List major equipment items and evaluate present condition of equipment:

Name of Item	Size	Age	Evaluation of Condition and Adequacy

(Continue on separate sheet if necessary)

13. List equipment items you believe are needed to make program completely adequate:

Item	Size	Approximate Cost	Program Improvement Possible with New Item

(Continue on separate sheet if necessary)

14. Could the curriculum be expanded to a post-high program? ....
What would be required to make this change? ....
....

15. What types of jobs and levels of employment could be covered in such an expanded program? ....

16. What additional equipment would be required? ....

17. What courses or curricula should be added to the school system to train students for semi-skilled occupations? ....

18. For skilled? ....

19. For technical? ....

20. For business and distributive occupations? ....

21. Indicate below by type of occupation whether these new programs should be offered by the present comprehensive schools, by vocational schools, or by a new type of school:

Occupational level or type	Should be offered by (Type of School)	Reason for suggesting type of school
Semi-skilled		
Skilled		
Technical and		
Semi-professional		
Business		
Distributive		
Service		

22. Please make any additional recommendations you believe would improve the occupational, vocational, or technical programs offered in the Pittsburgh Public Schools:

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VOCATIONAL EDUCATION in the PITTSBURGH PUBLIC SCHOOLS